# Rare Earth Mining Affirmative– CNDI 2014

## 1AC

### 1AC – Inherency

#### **Rare earth element prices will continue to rise as demand increases and supply remains scarce – current production efforts won’t displace the Chinese monopoly.**

Frearson 14 (Joanne Frearson, The Daily Telegraph Business Reporter, “Rocking all over the world: the rare earth metals market”, 6/26/14, http://business-reporter.co.uk/2014/06/rocking-all-over-the-world-the-rare-earth-metals-market/)

The demand for heavy rare earth elements is likely to rise as the use of green energy technologies increases and supply remains tight – while some light rare earths are moving to a position of oversupply. According to a report by research firm MarketsandMarkets, the demand for rare earth metals is estimated to reach 192,000 tons by 2018. Demand is strongest in the Asia-Pacific region, with China accounting for 60 per cent of global rare earth consumption. Although light rare earths such as lanthanum (used to make nickel metal hydride batteries for electric and hybrid vehicles) and cerium (used to polish glass, metal and gemstones) capture around 62 per cent of the market share, they are more abundant in the earth’s surface, and it is the heavier rare earths which will see their value increase. Rarer heavier earths which will be in demand include yttrium, europium and terbium used in energy efficient fluorescent lamps and bulbs, erbium which is used in lasers for medical and dental use, and dysprosium, used in the manufacture of neodymium-iron-boron high-strength permanent magnets. Rocking all over the world 2Paul Lusty, team leader of Ore Deposits and Commodities at the British Geological Survey, says: “Heavy rare earth elements are more expensive than the light rare earths because of their geological availability and market demand for them, which is generally expanding because of specialist applications in new technologies. “There is limited scope for rare earths to be substituted for other materials in these applications and the heavy rare earth elements are essential for their performance. Projections suggest supply will be problematic for yttrium, europium and terbium and may be challenging for other important elements such as erbium and dysprosium. They are more likely to sustain higher prices or see some price increase going forward. “For elements like terbium the supply situation is going to continue to be quite tight over the next few years, probably at least up to 2016 or the end of the decade until we see some significant heavy rare earth producing operations outside China actually coming online. The real major growth areas are associated with green or clean energy technologies. Many of the rare earths have important magnetic characteristics. They are used in industrial motors, hard disk drives, hybrid electric vehicles and wind turbines. Analysts are predicting increased demand for magnets which use rare earths.” At the moment, China has the monopoly in the rare earth market, but the emergence of new players in the industry is likely to have an impact on prices. China accounts for 85 per cent plus of global rare earth production, though Lusty says that new operations in the US and Australia are starting to make an impact on China’s share of the market for some elements. Companies such as US-based Molycorp and Australian firm Lynas have both started operating their rare earth mines which will see production of rare earth metals increase substantially. But Lusty says such changes will take some time to affect the industry’s strategy. “In terms of the future it takes a long time for the mining industry to respond to changes in demand,” he says. “It is probably going to be at least another 10 years before we see a diverse supply base outside China. The processing of rare earth is complex. It is unlikely that more than a handful of those projects that are currently being explored will reach the commercialisation stage and become producing mines.”

### 1AC – Plan

#### The United States Federal Government should substantially increase funding for mining and extraction of rare earth, critical, and near-critical elements from the ocean.

### 1AC – Green Tech

#### **Chinese monopoly and export limits destroy the supply chain for rare earth minerals – prevents clean energy growth.**

Snyder 12 (Jim Snyder, Bloomberg Business, “Five Rare Earths Crucial for Clean Energy Seen in Short Supply”, 1/5/12, http://www.bloomberg.com/news/2012-01-05/five-rare-earths-crucial-for-clean-energy-seen-in-short-supply.html)

Limited supplies of five rare-earth minerals pose a threat to increasing use of clean-energy technologies such as wind turbines and solar panels, a U.S. Energy Department report found. The substances -- dysprosium, terbium, europium, neodymium and yttrium -- face potential shortages until 2015, according to the report, which reiterates concerns identified a year ago. The 2011 report studied 16 elements and related materials, including nickel and manganese, which are used to make batteries. The analysis of so-called critical elements began after rare-earth prices jumped following imposition of export restrictions in 2010 by China, the world’s major producer. “Diversifying the global supply chain is key,” David Sandalow, assistant secretary for policy and international affairs at the Energy Department, said today in Washington. “Developing substitutes is also key.” Demand for rare-earth materials has grown more rapidly than that for commodity metals such as steel, he said. Rare earths became a political and legislative issue after China moved to reduce export quotas in July 2010 by 40 percent. The country accounts for 95 percent of rare-earth production, according to the Energy Department. The Chinese government said late last month it was leaving the export limits unchanged, and more production from companies including Greenwood Village, Colorado-based Molycorp Inc. (MCP) may ease some supply concerns.

#### **REMs are critical to all future development of renewable technologies – now is key to reverse the supply shortage.**

Jones 13 (Nicola Jones, resident science journalist @ University of British Columbia, Yale Environment 360, “A Scarcity of Rare Metals Is Hindering Green Technologies”, 11/18/13, http://e360.yale.edu/feature/a\_scarcity\_of\_rare\_metals\_is\_hindering\_green\_technologies/2711/)

With the global push to reduce greenhouse gas emissions, it’s ironic that several energy- or resource-saving technologies aren’t being used to the fullest simply because we don’t have enough raw materials to make them. For example, says Alex King, director of the new Critical Materials Institute, every wind farm has a few turbines standing idle because their fragile gearboxes have broken down. They can be fixed, of course, but that takes time – and meanwhile wind power isn’t being gathered. Now you can make a more reliable wind turbine that doesn’t need a gearbox at all, King points out, but you need a truckload of so-called "rare earth" metals to do it, and there simply isn’t the supply. Likewise, we could all be using next-generation fluorescent light bulbs that are twice as efficient as the current standard. But when the U.S. Department of Energy (DOE) tried to make that switch in 2009, companies like General Electric cried foul: they wouldn’t be able to get hold of enough rare earths to make the new bulbs. The move toward new and better technologies — from smart phones to electric cars — means an ever-increasing demand for exotic metals that are scarce thanks to both geology and politics. Thin, cheap solar panels need tellurium, which makes up a scant 0.0000001 percent of the earth’s crust, making it three times rarer than gold. High-performance batteries need lithium, which is only easily extracted from briny pools in the Andes. Platinum, needed as a catalyst in fuel cells that turn hydrogen into energy, comes almost exclusively from South Africa. Researchers and industry workers alike woke with a shock to the problems caused by these dodgy supply chains in 2011, when the average price of "rare earths" — including terbium and europium, used in fluorescent bulbs; and neodymium, used in the powerful magnets that help to drive wind turbines and electric engines — shot up by as much as 750 percent in a year. The problem was that China, which controlled 97 percent of global rare earth production, had clamped down on trade. A solution was brokered and the price shock faded, but the threat of future supply problems for rare earths and other so-called "critical elements" still looms. That’s why the Critical Materials Institute, located at the DOE’s Ames Laboratory, was created. The institute opened in June, and the official ribbon-cutting was in September. Its mission is to predict which materials are going to become problems next, work to improve supply chains, and try to invent alternative materials that don’t need so many critical elements in the first place. The institute is one of a handful of organizations worldwide trying to tackle the problem of critical elements, which organizations like the American Physical Society have been calling attention to for years. "It’s a hot topic in Europe right now," says Olivier Vidal, coordinator of a European Commission project called ERA-MIN — one of a handful of European initiatives that are now ramping up. "It's really urgent," says King. "We're facing real challenges today — we need solutions tomorrow, not the day after."

#### **Transition to renewables is the only way to reverse climate change – fast action is critical to keep temperature rise below the tipping point.**

IRENA 14 (International Renewable Energy Association, the global hub for renewable energy cooperation and information exchange by 130 Members (129 States and the European Union), Press Releases, “More Renewable Energy Needed to Avoid Catastrophic Climate Change”, 4/15/14, http://www.irena.org/News/Description.aspx?NType=A&mnu=cat&PriMenuID=16&CatID=84&News\_ID=356)

The International Renewable Energy Agency (IRENA) reinforced the call to action from the Intergovernmental Panel on Climate Change (IPCC) to limit global temperature increase and avert catastrophic climate change in a statement issued today. The transition to a sustainable global energy mix must be accelerated, the Agency said, in order to reduce global carbon dioxide (CO2) emissions by 40-70 percent compared with 2010 by 2050. Renewable energy, IRENA highlights, is the economically viable and technologically proven option to keep CO2 levels below the widely accepted threshold of 450 parts per million (ppm). “The latest report by the IPCC reconfirms that averting catastrophic climate change is possible if we act now. But we need to act decisively. Renewable energy, in combination with energy efficiency, provides the most affordable and technologically mature path to bring about the necessary change,” Adnan Z. Amin, IRENA’s Director-General, said at the opening of the World Green Economy Summit in Dubai. “The accelerated deployment of renewable energy significantly reduces energy-related carbon dioxide emissions at a reasonable cost, and also provides other benefits, including enhanced energy security, more local jobs and value-creation, and a cleaner and healthier environment.” With an average concentration of CO2 in the atmosphere of 398 ppm at the beginning of 2014, renewable energy provides a path to lower energy-related CO2 emissions and will help prevent a buildup of atmospheric CO2 beyond 450ppm, the widely accepted threshold to keep global temperature rise to 2 degrees Celsius above pre-industrial levels by 2100. Based on the world’s current path, annual global energy-related CO2 emissions will rise from 30 gigatonnes (Gt) in 2010 to 41.4 Gt in 2030, according to IRENA estimates. The IRENA global roadmap for a transition to a sustainable energy future,“REmap 2030”, due to be published in May, shows that renewable energy can reduce emissions by 8.6 Gt to an estimated 32.8 Gt in 2030. Based on numbers from the International Energy Agency, energy efficiency can yield an additional 7.3 Gt reduction, resulting in global energy-related CO2 emissions of 25.5 Gt by 2030. In addition to improvements in energy efficiency, this path would include a quadrupling of the share of modern renewable energy sources in the global energy mix by 2030.

#### **Independently, REMs are key to solar development – Chinese monopoly kills the industry and destroys international cooperation on solar.**

Finley 11 (Bruce Finley, The Denver Post, “China's control of rare-earth metals poses risk to U.S. solar future”, 01/16/2011, http://www.denverpost.com/ci\_17108810)

China's tight control of rare metals may hurt developing domestic solar industries, according to a research director at the National Renewable Energy Lab. "Folks are looking at, if we don't get it from China, how will we get it?" said Ryne Raffaele, director of the center for photovoltaics at NREL, the U.S. government's premier energy lab. "Can it easily be mined?" Scientists at NREL, west of Denver, use an array of rare metals in their research. The Chinese government's recent move to cut rare-metal exports by 35 percent and rapid growth of solar-panel manufacturing inside China also are chilling the climate for scientific cooperation. China produces 55 percent of the world's solar panels.

#### Cheaper solar alone solves global warming – cost effectiveness and technological efficiency – only international coop solves.

Bennett 13 (Peter Bennett, Editor of Solar Power Portal, PV Tech, “G20 should use solar to solve ‘world’s greatest problem’”, 8/2/13, <http://www.pv-tech.org/news/solar_can_solve_worlds_greatest_problem_2356>) [Gender Modified]

A former UK chief scientific adviser has called on all G20 countries to solve “world’s greatest problem” of climate change by developing low-cost solar energy. Writing in the Financial Times, former UK chief scientific adviser, Sir David King, and the former founder-director of the London School of Economics’ Centre for Economic Performance, Richard Layard, identify solar technology as [hu]mankind’s most plausible solution to climate change. The pair write: “To defeat the axis powers, the allies developed the atom bomb. When threatened in the cold war, the US sent a man to the moon .When threatened by global warming, we surely need a similar effort to save the planet. The Manhattan and Apollo projects engaged the best minds of their ages from a few nations. But today the effort needs to be international. “The project would need a clear aim – like the atomic bomb or a man on the moon. We suggest the following: to enable bulk electricity to be produced more cheaply by solar energy than by any fossil fuel.” The pair suggest that all G20 countries could partner to form a research project with the sole aim of providing solar-generated energy at commercial prices 24-hours a day by 2025. “Membership would be voluntary, but the participation of the US and China would be crucial, and they would play leading roles," note King and Layard. They continue: “Each country that joins the project should spend the money on research and development at home but within the context of an internationally agreed work plan. Nations should finance the project in whatever way they want. To match the spending on the Apollo project would require only 0.05% of each year’s gross domestic product for 10 years from each G20 country.” The pair acknowledge the challenges facing the proposed project, most notably, the collection, storage and distribution of the solar-generated electricity. However, they note that the cost of distribution is constantly falling and that, although breakthroughs in storage technology are required, they are technologically feasible. As for why they believe solar holds the key to solving climate change, the pair remark: “We need a concentrated effort on one source that offers the clearest prospect of success. The collection of solar energy by photovoltaic cells becomes cheaper every day and is already nearly economic in sun-rich environments. Every continent includes areas of such environments.” Speaking on BBC Radio 4’s Today programme, King added: “Solar cell prices fall 20% for every doubling of industry capacity and the installation prices between 2007 and 2012 by 75%. What we see is that the economic opportunity is now there and the more we invest in solar energy the cheaper it becomes to use it.” A recent report Navigant Research said that the global solar PV market would be worth US$134 billion by 2020, with PV-generated electricity becoming cost-competitive with retail electricity without subsidies. The authors conclude: “This is a far more important issue than putting a man on the moon. It should attract as much attention – and, this time, the attention of every nation. Failure to solve this problem will affect every nation upon earth.”

#### Warming is real, anthropogenic, and causes extinction – scientific consensus.

Schiffman 13 (Richard Schiffman 9/27/13, environmental writer @ The Atlantic citing the Fifth Intergovernmental Panel on Climate Change, “What Leading Scientists Want You to Know About Today's Frightening Climate Report,” The Atlantic, http://www.theatlantic.com/technology/archive/2013/09/leading-scientists-weigh-in-on-the-mother-of-all-climate-reports/280045/)

The polar icecaps are melting faster than we thought they would; seas are rising faster than we thought they would; extreme weather events are increasing. Have a nice day! That’s a less than scientifically rigorous summary of the findings of the Fifth Intergovernmental Panel on Climate Change (IPCC) report released this morning in Stockholm.¶ Appearing exhausted after a nearly two sleepless days fine-tuning the language of the report, co-chair Thomas Stocker called climate change “the greatest challenge of our time," adding that “each of the last three decades has been successively warmer than the past,” and that this trend is likely to continue into the foreseeable future.¶ Pledging further action to cut carbon dioxide (CO2) emissions, U.S. Secretary of State John Kerry said, "This isn’t a run of the mill report to be dumped in a filing cabinet. This isn’t a political document produced by politicians... It’s science."¶ And that science needs to be communicated to the public, loudly and clearly. I canvassed leading climate researchers for their take on the findings of the vastly influential IPCC report. What headline would they put on the news? What do they hope people hear about this report?¶ When I asked him for his headline, Michael Mann, the Director of the Earth Systems Science Center at Penn State (a former IPCC author himself) suggested: "Jury In: Climate Change Real, Caused by Us, and a Threat We Must Deal With."¶ Ted Scambos, a glaciologist and head scientist of the National Snow and Ice Data Center (NSIDC) based in Boulder would lead with: "IPCC 2013, Similar Forecasts, Better Certainty." While the report, which is issued every six to seven years, offers no radically new or alarming news, Scambos told me, it puts an exclamation point on what we already know, and refines our evolving understanding of global warming.¶ The IPCC, the indisputable rock star of UN documents, serves as the basis for global climate negotiations, like the ones that took place in Kyoto, Rio, and, more recently, Copenhagen. (The next big international climate meeting is scheduled for 2015 in Paris.) It is also arguably the most elaborately vetted and exhaustively researched scientific paper in existence. Founded in 1988 by the United Nations and the World Meteorological Organization, the IPCC represents the distilled wisdom of over 600 climate researchers in 32 countries on changes in the Earth’s atmosphere, ice and seas. It endeavors to answer the late New York mayor Ed Koch’s famous question “How am I doing?” for all of us. The answer, which won’t surprise anyone who has been following the climate change story, is not very well at all. ¶ It is now 95 percent likely that human spewed heat-trapping gases — rather than natural variability — are the main cause of climate change, according to today’s report. In 2007 the IPCC’s confidence level was 90 percent, and in 2001 it was 66 percent, and just over 50 percent in 1995. ¶ What’s more, things are getting worse more quickly than almost anyone thought would happen a few years back.¶ “If you look at the early IPCC predictions back from 1990 and what has taken place since, climate change is proceeding faster than we expected,” Mann told me by email. Mann helped develop the famous hockey-stick graph, which Al Gore used in his film “An Inconvenient Truth” to dramatize the sharp rise in temperatures in recent times. ¶ Mann cites the decline of Arctic sea ice to explain : “Given the current trajectory, we're on track for ice-free summer conditions in the Arctic in a matter of a decade or two... There is a similar story with the continental ice sheets, which are losing ice — and contributing to sea level rise — at a faster rate than the [earlier IPCC] models had predicted.”¶ But there is a lot that we still don’t understand. Reuters noted in a sneak preview of IPCC draft which was leaked in August that, while the broad global trends are clear, climate scientists were “finding it harder than expected to predict the impact in specific regions in coming decades.”¶ From year to year, the world’s hotspots are not consistent, but move erratically around the globe. The same has been true of heat waves, mega-storms and catastrophic floods, like the recent ones that ravaged the Colorado Front Range. There is broad agreement that climate change is increasing the severity of extreme weather events, but we’re not yet able to predict where and when these will show up. ¶ “It is like watching a pot boil,” Danish astrophysicist and climate scientist Peter Thejll told me. “We understand why it boils but cannot predict where the next bubble will be.”¶ There is also uncertainty about an apparent slowdown over the last decade in the rate of air temperature increase. While some critics claim that global warming has “stalled,” others point out that, when rising ocean temperatures are factored in, the Earth is actually gaining heat faster than previously anticipated.¶ “Temperatures measured over the short term are just one parameter,” said Dr Tim Barnett of the Scripps Institute of Oceanography in an interview. “There are far more critical things going on; the acidification of the ocean is happening a lot faster than anybody thought that it would, it’s sucking up more CO2, plankton, the basic food chain of the planet, are dying, it’s such a hugely important signal. Why aren’t people using that as a measure of what is going on?”¶ Barnett thinks that recent increases in volcanic activity, which spews smog-forming aerosols into the air that deflect solar radiation and cool the atmosphere, might help account for the temporary slowing of global temperature rise. But he says we shouldn’t let short term fluctuations cause us to lose sight of the big picture.¶ The dispute over temperatures underscores just how formidable the IPCC’s task of modeling the complexity of climate change is. Issued in three parts (the next two installments are due out in the spring), the full version of the IPCC will end up several times the length of Leo Tolstoy’s epic War and Peace. Yet every last word of the U.N. document needs to be signed off on by all of the nations on earth. ¶ “I do not know of any other area of any complexity and importance at all where there is unanimous agreement... and the statements so strong,” Mike MacCracken, Chief Scientist for Climate Change Programs, Climate Institute in Washington, D.C. told me in an email. “What IPCC has achieved is remarkable (and why it merited the Nobel Peace Prize granted in 2007).”¶ Not surprisingly, the IPCC’s conclusions tend to be “conservative by design,” Ken Caldeira, an atmospheric scientist with the Carnegie Institution’s Department of Global Ecology told me: “The IPCC is not supposed to represent the controversial forefront of climate science. It is supposed to represents what nearly all scientists agree on, and it does that quite effectively.”¶ Nevertheless, even these understated findings are inevitably controversial. Roger Pielke Jr., the Director of the Center for Science and Technology Policy Research at the University of Colorado, Boulder suggested a headline that focuses on the cat fight that today’s report is sure to revive: "Fresh Red Meat Offered Up in the Climate Debate, Activists and Skeptics Continue Fighting Over It." Pielke should know. A critic of Al Gore, who has called his own detractors "climate McCarthyists," Pielke has been a lightning rod for the political controversy which continues to swirl around the question of global warming, and what, if anything, we should do about it. ¶ The public’s skepticism of climate change took a dive after Hurricane Sandy. Fifty-four percent of Americans are now saying that the effects of global warming have already begun. But 41 percent surveyed in the same Gallup poll believe news about global warming is generally exaggerated, and there is a smaller but highly passionate minority that continues to believe the whole thing is a hoax. ¶ For most climate experts, however, the battle is long over — at least when it comes to the science. What remains in dispute is not whether climate change is happening, but how fast things are going to get worse.¶ There are some possibilities that are deliberately left out of the IPCC projections, because we simply don’t have enough data yet to model them. Jason Box, a visiting scholar at the Byrd Polar Research Center told me in an email interview that: “The scary elephant in the closet is terrestrial and oceanic methane release triggered by warming.” The IPCC projections don’t include the possibility — some scientists say likelihood — that huge quantities of methane (a greenhouse gas thirty times as potent as CO2) will eventually be released from thawing permafrost and undersea methane hydrate reserves. Box said that the threshhold “when humans lose control of potential management of the problem, may be sooner than expected.”¶ Box, whose work has been instrumental in documenting the rapid deterioration of the Greenland ice sheet, also believes that the latest IPCC predictions (of a maximum just under three foot ocean rise by the end of the century) may turn out to be wildly optimistic, if the Greenland ice sheet breaks up. “We are heading into uncharted territory” he said. “We are creating a different climate than the Earth has ever seen.” ¶ The head of the IPCC, Rajendra Pachauri, speaks for the scientific consensus when he says that time is fast running out to avoid the catastrophic collapse of the natural systems on which human life depends. What he recently told a group of climate scientist could be the most chilling headline of all for the U.N. report: ¶ "We have five minutes before midnight."

#### **Renewable investment also solves economic growth – jobs and energy security.**

IRENA 14 (International Renewable Energy Association, the global hub for renewable energy cooperation and information exchange by 130 Members (129 States and the European Union), Press Releases, “More Renewable Energy Needed to Avoid Catastrophic Climate Change”, 4/15/14, http://www.irena.org/News/Description.aspx?NType=A&mnu=cat&PriMenuID=16&CatID=84&News\_ID=356)

The renewable energy transition also has positive socio-economic impacts. Investments in renewable energy will create an additional 11 million jobs globally by 2030, and reduce the dependence on imported energy. Accoun ting already for around half of all new additions to power generation capacity worldwide, renewable technologies are the most economic solution for new capacity in an increasing number of countries and regions. Renewable energy has entered into a virtuous circle of falling costs, increased deployment and accelerated technological progress.

#### **REM scarcity independently causes economic crises – supply chain disruptions destroy manufacturing in all industries and make growth impossible.**

Vidal 12 (John Vidal, environment editor, The Guardian, “Rare minerals dearth threatens global renewables industry”, 1/27/12, http://www.theguardian.com/environment/2012/jan/27/rare-minerals-global-renewables-industry)

Scarcity of the mineral resources could affect disrupt entire supply chains and countries' attempts to meet emissions targets, said PwC. "The energy sector could face very great problems if the world turns to [renewables] in a big way. In the short term, there will be major supply problems. The availability of these metals will define the growth of these industry sectors. There are so far not many alternatives," said Rob Mathlener, author of a report that urged companies to build future strategies around recycling and reusing resources. Last December, Janez Potočnik, the EU commissioner for the environment, warned that the waste of valuable natural resources threatens to produce a fresh economic crisis. None of the minerals is likely to physically run out, but it can take 10 years for countries to open new mines. In the US there has been growing concerns that China dominates the supply of the materials considered crucial for the expansion of the US defence, computer and renewable energy sectors. A series of US government reports have urged an immediate increase in production of rare minerals. By mid-2012, US mining company Molycorp Minerals aims to produce 20,000 tonnes a year of nine of the 17 rare minerals, or about 25% of current western imports from China. Malcolm Preston, PwC's global sustainability leader, said: "It's a time bomb. Many businesses now recognise that we are living beyond the planet's means. If these industries, supply chains and economies are disrupted by shortages in supply, then the 'luxury of choice' lifestyle many in the Western world have become accustomed to, will also be affected." Six other core manufacturing industries, including aerospace, automotive and chemicals, were all found to be experiencing shortages. According to the US Congress report published last September, world demand for rare elements is estimated at 136,000 tonnes per year, with global production around 133,600 tonnes in 2010. It is projected to rise to at least 185,000 tonnes a year by 2015.

#### **Manufacturing is key to maintaining growth and competitiveness – trade, jobs, innovation, and multi-sector integration – the brink for decline is now.**

Ezell 13 (Stephen Ezell, Senior Analyst at the Information Technology & Innovation Foundation, Landegger International Business Diplomacy program @ Georgetown University, “Revitalizing U.S. Manufacturing”, Economic Stimulus, 11/27/13, http://issues.org/28-2/ezell-3/)

The United States suffered a precipitous decline in manufacturing during the past decade. Key to a reversal will be greatly expanded efforts to support the competitiveness of small- and medium-sized firms. At a recent Washington, DC, conference on the state of U.S. manufacturing, the head of one prominent economic policy think tank was asked, “How much of its manufacturing sector can the U.S. economy lose and yet still thrive?” The reply: “Really, we could lose all of it and be just fine.” Unfortunately, this view that the U.S. economy can thrive without manufacturing as a postindustrial, knowledge- and services-based economy has become all too prevalent among the Washington economic policy elite. Some even argue that the decline of manufacturing is a sign of U.S. economic strength, because it signals a thorough shift to an advanced services economy. After all, it’s only the laggard nations who still manufacture, they say. But as explained in The Case for a National Manufacturing Strategy, a report by the Information Technology & Innovation Foundation (ITIF), it’s impossible for large economies to remain competitive without a viable manufacturing sector for five key reasons: (1) manufacturing plays a vital role in helping countries achieve balanced terms of trade; (2) manufacturing provides large numbers of above average–paying jobs; (3) manufacturing is the principal source of an economy’s R&D and innovation activity; (4) the health of a nation’s manufacturing and services sectors are complementary and inseparable; and (5) manufacturing is essential to a country’s national security. An increasing number of U.S. competitors, including Australia, Brazil, Canada, China, Germany, Japan, Korea, and the United Kingdom, have recognized that manufacturing remains vital to their economic competitiveness and that they cannot have a healthy manufacturing sector without a healthy base of small- and medium-sized enterprise (SME) manufacturers. They recognize that because SME manufacturers account for more than 98% of manufacturing firms in almost all economies, they form the backbone of a nation’s industrial supply chain. Yet despite their importance, SME manufacturers lag larger manufacturers in adopting new technologies, increasing productivity, and exporting. Accordingly, an increasing number of countries have introduced and robustly funded a broad array of agencies, programs, and policy instruments to support the competitiveness, productivity, innovation, and export capacity of their SME manufacturers. These countries understand that supporting SME manufacturers’ adoption of new technologies and manufacturing processes as well as bolstering their R&D, innovation, and new product development activities have become indispensable to being an advanced industrial economy. They know that countries that do not have strategies in place to support their SME manufacturers are simply going to be left behind. Unfortunately, the United States is lagging badly in these efforts. Lack of support for SMEs was a key factor in the precipitous decline of U.S. manufacturing during the past decade. The United States must step up its efforts to revitalize manufacturing in general and SME manufacturing in particular. Free fall Manufacturing’s share of U.S. gross domestic product (GDP) and employment has fallen precipitously during the past decade. Yet many argue that U.S. manufacturing is actually quite healthy and that any job losses are simply a result of superior productivity gains. Others assert that manufacturing is in decline everywhere, so that the relative decline in U.S. manufacturing is not noteworthy. In contrast to these sanguine views, the reality is that, although U.S. manufacturing output and employment remained relatively healthy up until 2000, during the past decade the United States experienced the deepest industrial decline in world history. Some 54,000 U.S. manufacturers, including 42,000 SMEs, were shuttered. Manufacturing output, when properly measured, actually declined. Manufacturing employment fell by 33%, with the loss of 5.7 million jobs, a steeper decline than even during the Great Depression. Official government figures suggest that U.S. manufacturing output grew just 5% during the prior decade, even as U.S. GDP grew 18%. However, that figure is inflated because it significantly overstates output from two industries: computers/electronics and petroleum/coal products. Overestimation of the output growth from those two industries masks the fact that, from 2000 to 2009, 15 of 19 aggregate-level U.S. manufacturing sectors, which account for 79% of U.S. manufacturing, experienced absolute declines in output. The vast majority of apparent growth in manufacturing output came from the computers/electronics industry, which, according to official statistics, grew 260.5%. In other words, this one sector, which accounts for just 9% of overall U.S. manufacturing output, accounted for 80% of manufacturing output growth from 2000 to 2009, even though the number of workers in the industry declined from 1.78 million to 1.09 million. The reality, as explained in detail in The Case for a National Manufacturing Strategy, is that technical errors afflict official U.S. government measurements of manufacturing output, such that, when calculated accurately, real U.S. manufacturing output actually fell by at least 10% during the prior decade. A major cause of that decline has been a lack of investment in U.S. manufacturing. From 2000 to 2010, capital investment within the United States by U.S. manufacturers declined more than 21%, even as capital investment abroad by U.S. manufacturing firms was on average 16% higher than at home. Likewise, the notion that manufacturing job losses primarily reflect productivity gains is also mistaken. U.S. manufacturing productivity grew at similar rates between 1990 and 1999 and between 2000 and 2009—56 and 61%, respectively—yet manufacturing employment declined 3% in the former decade but 33% in the latter. Moreover, U.S. manufacturing job losses have been extreme as compared to those experienced in peer countries. Of the 10 countries tracked by the U.S. Bureau of Labor Statistics, no country lost a greater share of its manufacturing jobs than the United States between 1997 and 2009. In fact, if manufacturing output had grown at the same rate as GDP during the prior decade, the United States would have ended the decade with 2.2 million more manufacturing jobs. Given the multiplier effect that manufacturing jobs have on the rest of the economy, which is at least two to one, had U.S. manufacturing not shrunk, there would be perhaps 6 million more Americans working today. In short, the extreme job loss in U.S. manufacturing during the past decade reflects not productivity increases but rather output declines resulting from the lack of U.S. manufacturing competitiveness and the fact that U.S. manufacturers were increasingly offshoring and investing abroad. This is not the picture of a healthy domestic manufacturing sector. Finally, the notion that U.S. manufacturing decline is either inevitable or normal is also mistaken, as demonstrated by the fact that manufacturing is growing in many countries, including developed countries. For example, from 2000 to 2008, manufacturing output in constant dollars as a share of GDP increased by 10% in Austria and Switzerland, 14% in Korea, 23% in Finland, 32% in Poland, and 64% in the Slovak Republic. Moreover, from 1970 to 2008, Germany’s and Japan’s shares of world manufacturing output remained stable, even as the U.S. share declined by 12 percentage points, from 28.6 to 17.9%, and China’s share rose 13.4 percentage points, from 3.8 to 17.2%. The deindustrialization of high-wage economies is not preordained. Competitors such as Germany and Japan have avoided the sharp declines in manufacturing that befell the United States in the last decade. They have done so by remaining committed to manufacturing as a core contributor to their economies and by implementing coherent strategies to boost the productivity, innovation, and competitiveness of their manufacturing sectors, including specific programs and robust funding in support of their SME manufacturers. The growth of manufacturing extension services Argentina, Australia, Canada, Germany, Japan, Spain, the United Kingdom, and the United States have each created formal agencies or institutions to provide manufacturing extension services to SME manufacturers. These services provide hands-on outreach mechanisms to stimulate SMEs to acquire or to improve their use of technology and to stimulate innovation. Although other countries, notably Austria, China, Korea, Sweden, Singapore, and Taiwan, don’t have analogous manufacturing extension agencies, they have implemented specific programs to support SME manufacturers. In the United States, the Hollings Manufacturing Extension Partnership (MEP), located within the Department of Commerce’s National Institute for Standards and Technology, was founded in 1998 to work with SME manufacturers to help them boost productivity, increase profits, and create and retain jobs. MEP’s 1,300 technical experts, operating out of 60 regional centers located in every U.S. state, serve as trusted business advisors focused on solving manufacturers’ challenges and identifying opportunities for growth. Australia’s Enterprise Connect program, launched in 2008, is a national network of 12 manufacturing centers run by the Department of Innovation, Industry, Science, and Research, which serves as the country’s primary vehicle for delivering firm-level support. Britain’s Manufacturing Advisory Service (MAS), founded in 2002 and modeled after MEP, provides technical information and specialist support to SME manufacturers through a staff of 150 operating out of nine regional centers. Canada’s Industrial Research Assistance Program (IRAP), founded in 1962, supports SME manufacturers with a staff of 230 working out of 150 offices across 90 communities. Japan’s 162 Kohsetsushi Centers, first launched in 1902 and modeled after the U.S. agricultural extension service, has a staff of more than 6,000. As a share of GDP, Japan has 15 times the number of specialists working with SME manufacturers as does the United States. Countries’ investments in manufacturing extension services generate impressive returns and contribute strongly to broader economic and employment growth. Countries support their SME manufacturers for four key reasons. First, they recognize SMEs as key drivers of employment and technology growth. For example, Canada’s SMEs account for 80% of new jobs and 82% of new technologies created in the country. But they also recognize that a number of systemic market failures and externalities affect manufacturing activity in general and SME manufacturers in particular that justify government intervention. Thus, the second reason governments specifically assist SME manufacturers is that they lag in adopting new technologies that would make them more productive. SMEs are less likely than larger enterprises to implement new technology, to adopt modern manufacturing processes, to invest in worker training, to adopt new forms of work organization, and to deploy improved business practices. Because of this, a substantial productivity gap exists between large and small manufacturers. This gap is apparent in virtually all countries and has been growing over time. For example, on average in the United States, value added per employee in SMEs was about 80% of that of large establishments in the 1960s. By the late 1990s, this number had fallen to less than 60% of that of large establishments. Extension services play a critical role in closing knowledge and best-practices gaps between small and large manufacturers. The third rationale, as the European Commission’s Study of Business Support Services and Market Failure found, is that several types of market failure afflict the provision of public information and advisory services to SMEs. First, adverse selection issues arise when “inappropriate take-up of business support services occurs” because SMEs lack the scale to know the range of business support services available to them or the experience or knowledge necessary to adequately assess the value of those services or the quality of particular service providers. A second form of business support market failure arises when information services are not provided because no or only insufficient financial return can be made by private-sector firms. In fact, the UK’s extension service justifies its role precisely on the basis of addressing these two market failures. Finally, governments support SME manufacturers because they play critical roles in supporting healthy manufacturing ecosystems, supply chains, and even entire regional economies. As large firms increase their dependence on suppliers for parts and services, the performance and capabilities of small manufacturers become critically important to the competitiveness of all manufacturers. Because the health of an economy’s large manufacturers depends on the strength of the SME suppliers in their value chain, SMEs’ competitiveness or lack thereof has externalities that affect other enterprises throughout an economy.

#### Economic decline causes war – power transitions, trade, terrorism, and diversionary theory – massive statistical evidence proves.

Royal 10 (Jedediah Royal, Director of Cooperative Threat Reduction at the U.S. Department of Defense, “Economics of War and Peace: Economic, Legal, and Political Perspectives”, 6/14/10, pg. 213)

Less intuitive is how periods of economic decline may increase the likelihood of external conflict. Political science literature has contributed a moderate degree of attention to the impact of economic decline and the security and defense behavior of interdependent states. Research in this vein has been considered at systemic, dyadic and national levels. Several notable contributions follow. First, on the systemic level, Pollins (2008) advances Modelski and Thompson’s (1996) work on leadership cycle theory, finding that rhythms in the global economy are associated with the rise and fall of a pre-eminent power and the often bloody transition from one pre-eminent leader to the next. As such, exogenous shocks such as economic crises could usher in a redistribution of relative power (see also Gilpin, 1981) that leads to uncertainty about power balances, increasing the risk of miscalculation (Fearon 1995). Alternatively, even a relatively certain redistribution of power could lead to a permissive environment for conflicts as a rising power may seek to challenge a declining power (Werner, 1999). Separately, Pollins (1996) also shows that global economic cycles combined with parallel leadership cycles impact the likelihood of conflict among major, medium and small powers, although he suggests that the causes and connections between global economic conditions and security conditions remains unknown. Second, on a dyadic level, Copeland’s (1996, 2000) theory of trade expectations suggest that “future expectation of trade” is a significant variable in understanding economic conditions and security behavior of states. He argues that interdependent states are likely to gain pacific benefits from trade so long as they have an optimistic view of future trade relations. However, if the expectations of future trade decline, particularly for difficult to replace item such as energy resources, the likelihood for conflict increases, as states will be inclined to use force to gain access to those resources. Crises could potentially be the trigger for decreased trade expectations either on its own or because it triggers protectionist moves by interdependent states. Third, others have considered the link between economic decline and external armed conflict at a national level. Blomberg and Hess (2002) find a strong correlation between internal conflict and external conflict, particularly during periods of economic downturn. They write, The linkages between internal and external conflict and prosperity are strong and mutually reinforcing. Economic conflict tends to spawn internal conflict, which in turn returns the favor. Moreover, the presence of a recession tends to amplify the extent to which international and external conflicts self-reinforce each other. (Blomberg and Hess, 2002, p. 89) Economic decline has also been linked with an increase in the likelihood of terrorism (Blomberg, Hess and Weerapana, 2004), which has the capacity to spill across borders and lead to external tensions. Furthermore, crises generally reduce the popularity of a sitting government. “Diversionary theory” suggests that, when facing unpopularity arising from economic decline, sitting governments have increased incentives to fabricate external military conflicts to create a “rally around the flag” effect. Wang (1996), DeRouen (1995) and Blomberg, Hess and Thacker (2006) find supporting evidence showing that economic decline and use of force are at least indirectly correlated. Gelpi (1997), Miller (1999), and Kisangani and Pickering (2009) suggest that the tendency towards diversionary tactics are greater for democratic states than autocratic states due to the fact the democratic leaders are generally more susceptible to being removed from office due to lack of domestic support. De DeRouen (2000) has provided evidence showing that periods of weak economic performance in the United States and thus weak Presidential popularity are statically linked to an increase in the use of force. In summary, recent economic scholarship positively correlates economic integration with an increase in the frequency of economic crises, whereas political science scholarship links economic decline with external conflict at systemic, dyadic and national levels. This implied connection between integration, crises and armed conflict has not featured prominently in economic-security debate and deserves more attention. This observation is not contradictory to other perspectives that link economic interdependence with a decrease in the likelihood of external conflict, such as those mentioned in the first paragraph of this chapter. Those studies tend to focus on dyadic interdependence instead of global interdependence and do not specifically consider the occurrence of and conditions created by economic crises. As such the view presented here should be considered ancillary to those views.

### 1AC – Military Modernization

#### Chinese REM dominance causes a trade war with the US – export quotas create conflict and exploitable military vulnerabilities.

Robison & Ratnam 10[Pentagon Loses Control of Bombs to China Metal Monopoly By Peter Robison and Gopal Ratnam - Sep 29, 2010 3:49 PM PT. http://www.bloomberg.com/news/2010-09-29/pentagon-losing-control-of-afghanistan-bombs-to-china-s-neodymium-monopoly.html]

“The Pentagon has been incredibly negligent,” said Peter Leitner, who was a senior strategic trade adviser at the Defense Department from 1986 to 2007. “There are plenty of early warning signs that China will use its leverage over these materials as a weapon.” China may already be flexing its muscles amid a diplomatic spat with its East Asian neighbor Japan. China last week imposed a “de facto” ban on exports to Japan of the metals used in liquid crystal displays and laptop computers, Japanese Economy Minister Banri Kaieda said Sept. 28. That followed Japan’s detention of a Chinese fishing boat captain whose ship collided with two Japanese Coast Guard vessels. Japan later released the man. No such ban exists, China’s Ministry of Commerce spokesman Chen Rongkai said. New Factor “What it does, clearly, is bring a new factor into the consideration of supply of critical materials,” said Dudley Kingsnorth, director of Industrial Minerals Co. of Australia, a forecaster in Perth. The U.S. Congress’s investigative arm, the Government Accountability Office, in April warned of “vulnerabilities” for the military because of the lack of domestic rare-earth supplies. The House of Representatives Armed Services Committee will hold a hearing in October, the same month a Pentagon report on how to secure future supplies of the metals is due. “The department has long recognized that rare-earth elements are important raw material inputs for many defense systems and that many companies in our base have expressed concern regarding the future availability of the refined products of these elements,” Brett Lambert, director of the Pentagon’s Office of Industrial Policy, said. While two rare-earth projects are scheduled to ramp up production by the end of 2012 -- one owned by Molycorp Inc. in California and another by Lynas Corp. in Australia -- the GAO says it may take 15 years to rebuild a U.S. manufacturing supply chain. China makes virtually all the metals refined from rare earths, the agency says. The elements are also needed for hybrid-electric cars and wind turbines, one reason supply may fall short of demand in 2014 even with the new mines, according to Kingsnorth of Imcoa. Doggy Day Care Just how far U.S. manufacturing has waned is apparent at a factory in Valparaiso, Indiana, where dogs skitter across a bare concrete shop floor, their nails clicking. This brick plant on Elm Street once made 80 percent of the rare-earth magnets in laser-guided U.S. smart bombs, according to U.S. Senator Evan Bayh, a Democrat from Indiana. In 2003, the plant’s owner shifted work to China, costing 230 jobs. Now the plant houses Coco’s Canine Cabana, a doggy day care the current tenants started to supplement sagging income from their machine shop. On most days dogs outnumber the 15 metalworkers, said Kathy DeFries, co-owner of Excel Machine Technologies Inc. “When things got slow for manufacturing, we had this big empty shop floor,” said DeFries, nuzzling a floppy-eared puppy. “It’s a great stress reliever.” Expensive to Mine The rare earths are chemically similar elements, with names such as yttrium and dysprosium. China has the largest share of worldwide reserves, about 36 percent, and the U.S. is second, with 13 percent, the U.S. Geological Survey says. While the elements aren’t rare, they’re less frequently found in profitable concentrations, expensive for Western producers to extract and often laced with radioactive elements. China produced 120,000 tons, or 97 percent, of the world’s 124,000-ton supply last year, according to the GAO. Half of that came from Baotou, said Kingsnorth. The raw elements have many applications. Neodymium is used by Chinese companies including magnet makers, who sell to U.S. suppliers of defense contractors. Export Quotas Export quotas and taxes for overseas buyers that the GAO says can reach 25 percent are pushing up prices of elements even in relatively large supply. For example, the cost of a kilogram of samarium powder, needed for the navigation system of General Dynamics’ M1A2 Abrams tank, jumped to $34 in early September, from $4.50 in June, according to U.K. researcher Metal Pages Ltd. The U.S. and the European Union consider Chinese restrictions on a range of raw goods part of a strategy to draw in higher-paying manufacturing jobs by making them cheaper to buy inside China. The export taxes violate World Trade Organization rules because China pledged to limit them to 84 product categories when it joined the trade group in 2001, said Terence Stewart, managing partner of Washington law firm Stewart & Stewart. In 2010, China had taxes on 329, he said. The U.S. and the EU filed a WTO complaint over raw materials including bauxite and coke last year. China’s commerce minister, Chen Deming, said Aug. 28 that the policies comply with WTO rules. Some manufacturers in China are lobbying the ministry to back off the latest quotas because a dispute will disrupt the market, said Constantine Karayannopoulos, chief executive officer of Toronto-based Neo Material Technologies Inc., which has rare-earth production facilities in China. Risk of Trade War “It was very sudden and didn’t give the industry any time to adjust,” he said. “This quota action could risk a trade war.” For Western companies, China’s policies are creating the real “unobtanium,” the fictional mineral fought over in James Cameron’s 2009 film “Avatar.” It’s taking as long as 10 weeks to get neodymium magnets, double the previous wait time, said Joe Schrantz, group supply chain manager at Moog Inc. in East Aurora, New York. He said the company buys hundreds of thousands of magnets a year to make motors for cars, trucks and weapons including Raytheon’s AMRAAM -- or Advanced Medium-Range Air-to-Air Missile -- and Boeing’s Joint Direct Attack Munition, a tail fin kit for making precision-guided “smart” bombs out of ordinary weapons.

#### **Conflicts destroy U.S.-China relations – they’re on the brink now.**

Dingli 13 (Shen, professor and associate dean at Fudan University’s Institute of International Studies, interviewed by Emeritus Professor Joseph Camilleri, La Trobe University, May 21, 2013, Retrieved from May 24, 2013, from http://www.thepowerofideas.com/post/50987680565/the-future-of-us-sino-relations-an-interview-with)

SD: Current Sino-US relations can be described as an interesting mix of necessary cooperation and increasing competition, with some controlled confrontation. So long as it views itself as a “City upon a hill,” the United States will remain fundamentally opposed to the emergence of a multipolar system. In particular the United States will resist anyone, China included, from sharing its leadership. America may accept certain partnerships as part of a US-centric world, but not as part of a multipolar one. America may eventually agree to engage with China in the development of a multipolar order, but out of necessity, not out of choice. There are many examples of expanding China-US cooperation: collaborating against North Korea’s nuclear and missile development; jointly stabilizing the world financial market; and, dispatching large numbers of students reciprocally to learn from each other etc. But areas of suspicion are increasing even faster when it comes to perceptions of each other’s strategic intentions: why the US has moved its pivot to Asia, and how China perceives its interests in the South China Sea, to name a few. The US is wondering whether Beijing, especially during China’s military modernization, will follow through on its international commitment, especially to the 1982 UN Convention on the Law of Sea (UNCLOS) which allows Vietnam, the Philippines, Malaysia, Brunei and Indonesia respective exclusive economic zones (EEZs), thereby denying China’s claim of the right to tap maritime economic resources in some of these exclusive areas. China, for its part, is deeply concerned about the US shift to a pro-Japan position in the China-Japan sovereignty dispute over the Diaoyu Islands. Such deep mutual suspicion and subsequent hedging, if poorly managed, could lead to serious crisis escalation.

#### **Relations are key to solve multiple causes for war and competing military modernization – stable trade is key.**

Gross 13 (Donald senior associate at the Pacific Forum of the Center for Strategic and International Studies (CSIS), a former State Department official, and author of The China Fallacy), Mar. 19, 2013, Retrieved May 24, 2013 from http://www.huffingtonpost.com/donald-gross/us-china-relations\_b\_2891183.html?view=print&comm\_ref=false)

Better relations with China would support wide-reaching political reform and liberalization. They would undercut the repressive internal forces that legitimize one-party authoritarian rule as a means of protecting the country against foreign military threats, particularly from the United States. In the field of national security, through an ongoing process of mutual threat reduction, the United States can ensure that China is a future partner and not a danger to the interests of America and its allies. The greatest benefit is that the U.S. would avoid a military conflict for the foreseeable future with a country it now considers a major potential adversary. Other critical security benefits to the United States and its allies include: • Significantly reducing China's current and potential military threat to Taiwan, thus securing Taiwan's democracy; • Utilizing China's considerable influence with North Korea to curb Pyongyang's nuclear weapon and missile development programs; • Increasing security cooperation with China on both regional and global issues, allowing the United States to leverage Chinese capabilities for meeting common transnational threats such as climate change, energy insecurity, pandemic disease, cyberterrorism and nuclear proliferation; • Curtailing cyberattacks by the Chinese military on U.S.-based targets as well as enforcing stringent measures against private individuals and groups in China that engage in cyber-hacking; • Having China submit its maritime disputes in the South and East China Seas to an independent international judicial body to prevent festering conflicts over uninhabited islands and energy resources from escalating to armed conflict; and • Reducing the scope, scale, and tempo of China's military modernization programs by discrediting the rationale for conducting a focused anti-U.S. buildup, especially since the country has so many other pressing material needs. In his second term, President Obama should seize the opportunity created by the emergence of China's new leadership to stabilize U.S.-China relations -- by pursuing a diplomatic strategy that minimizes conflict, achieves greater mutually beneficial Sino-American cooperation, and significantly expands trade and investment between the two countries. This approach would enable the United States to maintain an effective military presence in the Asia Pacific in coming years, despite defense budget cuts, while also rebalancing economic and political resources to the region to ensure stability and mutual prosperity.

#### **Chinese resource monopoly uniquely makes war more likely and more dangerous – export cutoffs destroy military effectiveness and collapse hard power completely.**

Kim 14 (William Kim, staff writer, The Catalyst, Colorado College, “Control of rare earth elements crucial to American stability”, 2/23/14, http://catalystnewspaper.com/2014/02/23/control-of-rare-earth-elements-crucial-to-american-stability/)

An episode of House of Cards deals with a crisis between China and the United States as a result of China cutting off US access to Samarium, a rare earth element. Unfortunately, this situation is not very far fetched. Rare earth elements are extremely important to the United States. They have vital applications in electronics, as they are used in the production of hard disks, smart phones, TV screens, and touch screens. Rare earth elements have also allowed electronics like headphones to become smaller, and they are critical to the energy sector. They are used in oil refineries, hybrid cars, wind turbines, nuclear control rods, energy efficient light bulbs, and solar panels. Other civilian applications include water treatment, medical imaging, and super alloys. Rare earth elements are even more important to the military. As a result of the Pentagon’s “network-centric” warfare doctrine, the US military is highly computerized, so all of the IT applications of rare earth elements apply to the military. Thus, these elements are found in tanks, warships, fighter jets, smart munitions, missile defense systems, satellites, and communication gear. Fighting a war without rare earth elements would be like fighting without fuel or ammunition. It’s no surprise that a Congressional finding called rare earth elements “critical to national security.” Currently, China controls 97 percent of the world’s production of rare earth elements. This gives China a massive upper hand in international disputes. In response to a maritime dispute with Japan, China cut off rare earth exports to Japanese customers and cut global export quotas, claiming that they were trying to “fight pollution.” If China were to cut off rare earth exports to the United States in response to a trade war, military conflict, or a cold war, they would bring the United States to its knees economically and militarily. Given the fact that tensions still remain high in the South China Sea and the Strait of Taiwan, this is a dangerous situation for the US. It is critical that the United States finds alternate sources of rare earth elements. These sources do exist. Although China controls the vast majority of the world’s current production, it only has 37 percent of the world’s reserves. Despite the name, rare earth elements are actually relatively abundant. There are many rare earth element mines outside of China that were shut down after China undercut world prices in the 1990s. Surprisingly, the US was the largest producer in the 1980s. Mines in Australia are appearing online, and mines in the US, Brazil, Vietnam, Greenland and Canada could be online by 2015. The United States government should subsidize domestic rare earth production and encouragwe other countries to do the same in order to end China’s monopoly. Another source of rare earth elements is the piles of dirt and rock that were discarded during the gold rush. These mine tailings were once thought to be worthless, but could in fact be a “gold mine” of rare earth elements. Recycling rare earth elements is also an option. Japan has already built recycling plants that extract these elements from old hybrid car batteries and electronics. This would lead to additional environmental benefit, since rare earth mining and refining creates toxic waste and emits carbon dioxide. In the long term, it may be possible to remove rare earth elements from the equation altogether. Companies and universities are trying to develop substitute materials with nanotechnology, as well as devices that do not need rare earth elements. However, these technologies remain elusive after years of research. As a short-term plan, the United States should create a prudent reserve of rare earth elements to add to the other stockpiles of strategically important resources like medicine and oil. There’s even a National Raisin Reserve! Since rare earth elements are vital to the American economy and military, there is no reason why the government should not have a national emergency stockpile of them. Many ask why the Allies won the Second World War. One of the reasons was that the Allies had far more natural resources, especially oil. The United States produced 60 percent of the world’s oil, and the remainder was largely produced by other Allied nations. Britain controlled the oil-rich Middle East, while the Soviet Union had significant oil reserves in the Caucuses. In contrast, the Germans had a few oil wells in Romania, but they had no efficient way of processing or transporting this oil (which was made harder by Allied bombing). The Japanese captured the oil rich Dutch East Indies early in the war, but American submarines made transportation difficult. Ultimately, Axis warships, planes, and tanks simply ran out of gas. Training had to be cut back, resulting in unskilled pilots and tank crews. Axis fleets and armies had to disengage or avoid fights altogether due to a lack of fuel. While a major great power war is far less likely now than it was in the 1900s, the United States faces a similar problem. Rare earth elements are about as important as oil to our military and economy. In the unlikely but possible event of war with China (or even a cold war for that matter), America would find itself in a similar predicament in regard to rare earth elements that Germany and Japan faced with regard to oil. The United States cannot let such a critical resource remain in the hands of a single foreign nation, particularly a nation that could be a major competitor for world power.

#### REMs are key to all aspects of hard power for a modern military – all missile systems, radar and sonar, smart bombs, and missile defense technologies.

Hendrick 4 (James Hendrick, President of Hedrick Consultants Inc. ex-Rare Earth Commodity Specialist for the U.S. Geological Survey, “Rare Earths in Selected U.S. Defense Applications”, 5/7/4, http://www.usmagneticmaterials.com/documents/RARE-EARTHS-IN-US-DEFENSE-APPS-Hendrick.pdf)

The rare-earth elements (REE) have a wide variety of defense applications, some of which are critical to the national security of the United States. As essential materials in the manufacture and operation of defense and weapons systems, the REE are used in many forms from low-purity concentrates and natural mixtures of metal (mischmetal) to ultrahigh-purity compounds and metals. Although they are common in the Earth’s crust, they rarely occur in sufficient concentrations to be economically extractable. The principal sources of the REE are the four minerals, bastnŠsite, loparite, monazite, and xenotime and the rare-earth ion adsorption clays. Production of REE has been primarily from Australia, China, India, Malaysia, Russia, and Thailand, with China being the dominant world producer. Rare-Earths Defined The rare earths are not rare nor are they earths (the historical term for an oxide/nonmetal). The rare earths are a moderately abundant group of 17 metallic elements that includes the 15 lanthanides, yttrium, and scandium. The elements range in crustal abundance from cerium, the 25th most abundant element of the 78 common elements in the Earth’s crust at 60 parts per million (ppm), to thulium and lutetium, the least abundant rare-earth elements at about 0.5 ppm (Mason and Moore, 1982, p. 46). In rock-forming minerals, REE typically occur in compounds as trivalent cations in carbonates, oxides, phosphates, and silicates. Based largely on ionic radius, the REE are classified into two groups; the light-group rare-earth elements from lanthanum to europium, abbreviated LREE, and the heavy-group rare-earth elements from gadolinium to lutetium, including yttrium, abbreviated HREE. REE minerals and deposits generally are classified as either a LREE or HREE type although minerals of both types may occur in a single deposit. Minerals and deposits with LREE are more abundant than those with HREE. RE Ores The REE have multiple ores. The principal rare-earth ores are bastnŠsite, monazite, xenotime, loparite, and lateritic ion-adsorption clays. The majority of the economic REE are derived from LREE ores. BastnŠsite, the principal source of most of the world’s REE, is dominated by LREE. It has been mined from several igneous carbonate-rich deposits called carbonatites (Mountain Pass, CA, USA; Mainning, Sichuan Province, China; Weishan, Shandong Province, China, etc.) and from the Bayan Obo, China, iron-niobium-REE deposit, with geologic affinities to both carbonatite and hydrothermal iron-oxide (-Cu-Au-REE) deposits, such as Olympic Dam, Australia, and Kiruna, Sweden (Haxel and others, 2002). Monazite, a rare earth-thorium phosphate mineral, is quite similar to bastnŠsite as a LREE ore, however, it contains slightly more of the HREE, especially, yttrium, dysprosium, and gadolinium. The negative aspect of mining and processing monazite is its typically high content of thorium, a naturally occurring radioactive element (4.5%-10% ThO 2 equivalent). The radioactive content has virtually eliminated monazite production except in small quantities from southeast Asia and India. It is typically mined as a heavy-mineral sand from fluvial or aeolian beach or dunal deposits. It is recovered as a byproduct during processing for ilmenite, rutile, and zircon or cassiterite. Loparite, a lesser known LREE ore mined from Russia’s Kola Peninsula, is an oxide mineral. It has a small HREE content that is similar to monazite’s, but with a more balanced REE mix. Loparite is recovered by hard-rock mining methods from the alkali massif’s porphyritic rocks with concentrations in the urtites and their feldspar equivalents, juvite and malignite (Hedrick and others, 1997). Xenotime, a HREE ore, is mined as a byproduct of tin mining and to a lesser extent, as a byproduct of heavy-mineral sands mining. Like monazite, it is a phosphate mineral and was the major ore of yttrium until the mining of the ion adsorption lateritic clays became dominant as a result of lower mining costs and higher abundance. The ion adsorption lateritic clays are HREE ores. The ore mined in Longnan, Jiangxi Province, China, is enriched in yttrium and is the world’s main source of REE. The REE distribution of the Longnan ore is analogous to xenotime and was obviously derived from the intense weathering of this mineral. The lateritic ion adsorption clay from Xunwu, Jingxi Province, China, is LREE-enriched, however it still has a much higher HREE content compared to the other LREE ores, bastnŠsite, monazite, and loparite. This ore also is a significant source of the world’s yttrium supply. World REE Supply The world’s REE supply is provided primarily from China. In 2002, the latest available production data, China produced 97,000 short tons (88,000 metric tons) equivalent REO. This represents 90% of the world’s total production of 108,000 short tons (98,200 metric tons) REO (Hedrick, 2004). Principal uses were in glass polishing and ceramics, petroleum refining catalysts, metallurgical additives and alloys, automotive catalytic converters, rare-earth phosphors, permanent magnets, and miscellaneous applications. U.S. REE import sources in 2002 were China with 62% and France with 12%. Intermediate REE compounds processed in France, however, were primarily sourced from China (Hedrick, 2004). The REE ores are processed by various methods to make intermediate REE concentrates and are further purified using solvent extraction and selective precipitation. **These REE are used in hundreds of products, including several that are critical to defense applications. Precision Guided Munitions REE are used in both missiles and “smart” bombs which are broadly classified as precision guided munitions (PGM). Missiles are classified into eight categories; air-to-air, air-to-surface, air-launched bombs, cruise, anti-ship, surface-to air, surface-to-surface, and strategic nuclear missiles.** Although most of the missiles covered in these eight categories incorporate rare earths, only a select few are discussed in this paper (Missile data were provided by the U.S. Government and its contractors, including the U.S. Army, Navy, Air Force, Marines, National Guard, The Boeing Company, Lockheed Martin Corporation, and Raytheon Company). Each missile uses samarium-cobalt permanent magnet motors to direct the moving flight control surfaces (fins) (Hedrick and Templeton, 1991). Air-to-air Three types of missiles are classified as air-to-air, the AIM-9 “Sidewinder,” the AIM-54 “Phoenix,” and the AIM-120 AMRAAM. The AIM-9 “Sidewinder,” which uses infrared heat-seeking targeting, has four fins mounted on the forward section of its fuselage that control its flight trajectory with rare-earth magnet motors. The AIM-54 “Phoenix” is a long-range missile that uses semiactive and active radar guidance. It is directed by samarium-cobalt motors positioning the fins at the rear of the missile. The advanced longer-range AIM-120 AMRAAM (Advanced Medium-Range Air-to-Air Missile) is replacing the AIM-7 air-to-air missile. Movable flight surfaces of the AIM-120 are mounted mid-fuselage and are directed by samarium-cobalt actuators. Air-to-surface The AGM-84E SLAM (Standoff Land Attack Missile) missile was designed to attack ships and land-based targets. The SLAM is directed by rare-earth-controlled fin actuators that are mounted mid-fuselage and has a range of over 70 miles (113 km). The AGM- 8 8 HARM (High speed Anti-Radiation Missile) is an anti-radar missile. Designed to seek and destroy radar-emitting sources, it can be fired at an active radar source or launched in loiter mode, where it will cruise and delay targeting until a radar source is activated. Fins are controlled by rare-earth magnets that direct the missile based on guidance data from rare-earth microwave-sensing devices. Stinger handheld missiles Small, lightweight, and portable, the stinger missile can be easily hidden inside a car or a van. The missile has heat sensors in the tip and a computer that guides it straight to an aircraft’s engines using rare-earth magnet motors to control the fins. They can shoot down an aircraft as high as 11,500 feet (3,505 meters) and can attain a velocity of Mach 2.0. Cruise missiles The only production cruise missile in this category is the BGM-109 Tomahawk. The BGM-109 Tomahawk missile deploys its flight control surfaces after launch. The guidance system of the Tomahawk is connected to tail control fins that use direct drive rare-earth magnet actuators. Smart bombs U.S. Joint Direct Attack Munitions (JDAM) area group of air-to-surface “smart bombs” that use neodymium-iron-boron magnets to control the drop direction when dropped from an aircraft. The JDAM program retrofitted existing munitions by adding directional control for improved accuracy; reclassifying them as PGMs. JDAM’s include the GBU-29 (350-lb), GBU-30 (500-lb), GBU-31 (2,000-lb), GBU-32 (1,000-lb), GBU-35 (1,000- lb), and the GBU-38 (500-lb). Other bombs retrofitted with tailkits using rare-earth magnets are the Global Positioning System Aided Munitions (GAM) encompassing the GBU-36/B (2,000-lb) and the GBU-37/B (4,500-lb) penetrator known as the “bunker buster” (Kopp, 1996). Lasers U.S. defense forces employ neodymium:yttrium-aluminum-garnet (Nd:YAG) lasers as rangefinders, target designators, and target interrogators. Onboard U.S. tanks and other vehicle-mounted weapon systems, rare-earth lasers are used to determine the range of enemy targets at distances of over 22 miles (35 kilometers). Portable rangefinders, carried by ground troops, have a range of at least 9 miles (14 kilometers). Portable target designators , which illuminate a target with a precisely coded beam of laser light, operate at ranges up to 30 miles (48 kilometers), while airborne laser target designators are operable to distances of 80 miles (129 kilometers). The laser-equipped computer gun sight on the Abrams M1A1/2 tank combines a Raytheon rangefinder and integrated designator targeting system for a high-probability first hit. Rare-earth laser interrogators are used for enemy detection and countermeasures. A short laser pulse, often in the ultraviolet (UV) range, is emitted that illuminates the object and allows a receiver to analyze and determine if the object is friend or foe. Object information determined includes object type, speed, direction of movement, analysis of its weapons system, and appropriate response. A second type of laser interrogator scans for enemy optics, and upon detection, employs countermeasures to evade detection and/or destroy the enemy system. A third type of interrogator, typically attached to a missile weapons system, emits a predetermined wavelength and pattern to visually interrogate multiple objects in the battlefield. Within milliseconds, it elicits a predetermined signal or response from all friendly objects in the battlefield and launches missiles to destroy all unidentified (unfriendly) objects. The principal system used to detect underwater mines uses a rare-earth laser system. The airborne countermeasure system known as “Magic Lantern” uses a blue-green frequency-doubled Nd:YAG laser to scan below the water surface (Military & Aerospace, 1997). Communications Traveling wave tubes (TWT) and klystrons that generate and amplify microwaves use rare-earth magnets in their waveguides. In defense applications, TWT's and klystrons are used in satellite communications, troposcatter communications, pulsed or continuous wave radar amplifiers, and communication links. To focus the electron beam, periodic permanent magnets of rare earths are used in wide bandwidth helix TWT, while nonperiodic permanent magnets are applied in higher-energy, narrow bandwidth klystrons. Rare-earth lasers are used in line-of-sight communication links in satellite- and ground-based systems. Communication lasers have had limited application in satellites that are in geosynchronous or geostationary orbit (GEOs), but expanded use is planned in low Earth-orbit (LEOs) satellites. Laser light’s higher frequencies allows a greater bandwidth and faster data throughput than conventional microwave transfer. Erbium-doped fiber and fiber amplifiers are applied in high-capacity fiber optic systems. In field scenarios, distribution of a fiber optic communications grid can be quickly accomplished by ground troops, vehicles, or fast line distribution from helicopters. Advantages of the erbium-doped fiber are its capacity to carry large amounts of digital data, its ability to cover large distances without a repeater or signal amplifier, a wide range of temperature stability, immunity to interchannel crosstalk, and security from outside interference and electronic interception. Rare-earth speakers Neodymium-iron-boron permanent magnets are used in speakers and other sound system components (tape, hard disk, and CD/DVD drives) used in psychological warfare. For example, in Ethiopia, a decoy invasion was staged in darkness using the sounds of ships, tanks, helicopters, and voices created by speakers on rafts. Meanwhile the landing force quietly came ashore miles away. Samarium-cobalt or neodymium-iron-boron rare-earth permanent magnets, and terbium-iron-nickel alloy with dysprosium (Terfenol-D) are used in stealth technology in helicopters to create white noise to cancel or hide the sound of the rotor blades. Terfenol-D, a magnetostrictive alloy, was originally developed by U.S. Navy scientists for use as a transducer for sonar applications (Clark, 1980). Sensors monitor noise or vibration levels, then computers drive Terfenol-D actuators to provide equal force at the same frequency, but 180° out of phase, effectively eliminating the noise or vibration. Aircraft Samarium-cobalt permanent magnets are used in generators that produce electricity for aircraft electrical systems. In addition, small high-powered rare-earth magnet actuators are employed in moving the flight control surfaces of aircraft, including flaps, rudder, and ailerons. Yttria-stabilized zirconia, a high-temperature resistant ceramic coating, is used as a thermal barrier in the “hot” sections of jet engines to protect the metal alloys. Yttria keeps the zirconia from changing from a tetragonal to monoclinic structure, which would degrade the ceramic’s high-temperature stability and strength. The ceramic coating is used in the Pratt & Whitney F100-PW-229 turbofan engine for the McDonnell Douglas Corp. F15 Eagle and the Lockheed Martin F16 Fighting Falcon fighter jets (Hedrick, 1990). Displays Color televisions and computer monitors are essential components in many defense system control panels to display and quickly communicate data, especially in avionic displays and vision enhancement screens. Rare earths have been used in color cathode ray tube (CRT) phosphors since the early 1960s. Europium-yttrium compounds have long been used as a red phosphor in CRT screens because of its sharp excitation color peak at 611 nanometers (nm). Color super video graphics array (SVGA) monitors typically use medium-to-short persistence phosphors. This enables faster SVGA image changes and eliminates ghosts. Cerium oxide is an additive in CRT glass to reduce “browning” from electron emissions and as a glass polishing compound for CRT faceplates. Recent technology uses liquid crystal digital (LCD) displays in flat panel displays (FPD) for computers, avionics, and weapon system monitors. FPDs typically use either twisted nematic/super-twisted nematic (TN/STN), thin film transistor (TFT) LCD technology, or plasma display panels (PDP) (Asahi Glass Co. Ltd., 2003). All of these FPDs have glass panels or substrates that are polished with cerium oxide. Avionic displays use terbium-doped gadolinium oxysulfide and lanthanum oxysulfide phosphors for high-luminescence. The rare-earth avionic phosphors emit yellow-green light at 542 nm and 545 nm wavelengths, respectively (Teckotsky, 1981). Installed on the Abrahms M1A1/2 tank is a Raytheon AN/VSS-5 Drivers Vision Enhancer that allows the driver to view the horizon using a microwave (7.5- to 13-micron) multielement detector array. Radar Systems Rare earths are used in several applications in radar systems. Rare-earth permanent magnets, typically samarium-cobalt, are used in the radar’s TWT to focus the microwave energy. Yttrium-iron garnets (YIG) and yttrium-gadolinium garnets (YGG) are used in phase shifters, tuners, and filters. These systems are used in the PATRIOT (Phased Array Tracking to Intercept of Target) air defense missile system’s guidance and radar control group (Hamant, 1977). Samarium-cobalt magnets are used in both the missile's and radar system's TWT (oral communications, Robert F. Hatem, Manager, Customer Relations, and Howard L. Graves, Patriot Program, Raytheon Co., Bedford, MA, June 25, 1993). YGG’s are used in the toroids in the PATRIOT’s phased array elements and in the radio frequency (RF) circulators in the radar and missile. RF circulators magnetically control the flow of electronic signals. Samarium-cobalt permanent magnets are used to focus the electron beam of radar magnetron tubes. Magnetron tubes are used in ground-based systems for air traffic control and surveillance radar, search radar, and weapon fire-control radar. Defense radar also is used for anticollision and avoidance, weather detection, and as a navigational aid in aircraft and naval applications. Cross field amplifiers (CFA) generate moderate bandwidth, moderate gain, and output signals in a smaller and lighter weight unit than traditional microwave tubes. CFA are used in ground-based, airborne, and phased array radar applications. Output is typically focused with samarium-cobalt magnets. CFA are used in the phased array system of the AN/SPY-1 radar in the Navy’s AEGIS system. The AEGIS radar and missile array is the most advanced shipboard system deployed for antiaircraft and antimissile defense. Yttria also is used in some electron-emitting cathodes in TWT, magnetrons, and other devices. Coatings Gadolinium metal, applied as a paint or coating, was used as a defensive measure against neutron radiation. Gadolinium, which has the highest neutron capture cross section of all the elements, is the material of choice for absorbing high-energy neutrons. Optical Equipment Cerium-based compounds are used as polishing media for many types of optical lenses encountered in the battlefield. Many of these lenses also contain the additive lanthanum oxide, to increase light refraction and decrease dispersion. Precision polished optical lenses are used for ranging, targeting, observation, detection systems, countermeasures, photography, and protection from harmful laser wavelengths, flashblindness, UV and reflected light. Rare earth-containing optics are used in binoculars, rifle scopes, laser targeters and designators, telescopes, microscopes, protective eyewear, rangefinders, night-vision equipment, camera lenses, filters, and protective lenses. Sonar Terfenol-D rare-earth alloy is replacing piezoceramic materials in several devices including high-power sonar on ships and submarines. Terfenol’s response to a magnetic field is 200 times faster than a mechanical device. It also has recently been designed for use as a diesel fuel injector, adjusting its size almost instantaneously to dispense the proper amount of fuel. Terfenol also is used in actuators to quickly, forcefully, and precisely adjust, aim, balance, and control all types of equipment, such as lasers, reflectors, and lenses. Ultrasonic transducers REE ultrasonics, defined as the oscillations in a frequency range between 16 kHz and 1 GHz that cannot be heard by humans, are used in sonochemistry, ultrasonic welding, food processing, waste material conversion, ultrasonic machining, medical tools, hand tools, and to kill bacteria. Sonic transducers Terfenol’s acoustic energy is developed through the expansion and contraction of a highly tuned acoustic element, driving high-pressure waves. The oil industry uses this property in a downhole instrument to increase the strategic supply of oil. This acoustic energy, or sound energy, results from a change in pressure. The introduction of acoustic or vibratory energy into an oil-bearing formation affects oil recovery in several ways. Vibration reduces surface tension between the oil and the rock wall, freeing the oil to leave the pores and flow to the well bore. This same vibrational energy also results in the elimination of surface films that prevent oil from flowing out of the pores. Computers Computers having neodymium-iron-boron permanent magnets are used in many defense systems. Designed to withstand vibration, impact, and g-forces, rare-earth disk drive motors and actuators are installed in aircraft, tanks, missile systems, and command and control centers. Electronic Counter Measures Electronic counter measures (ECM) cover a wide array of applications. ECM systems comprise equipment to detect a variety of electronic signals and transmissions in the battlefield. Interactive ECM equipment acts to jam, absorb, redirect, or return false data. Jammers act to interfere with an enemy’s original signal so it becomes scrambled or useless. ECM can also capture radar transmissions and cancel the returning signals by matching or shifting wavelengths. Radar data also may be intercepted, analyzed, and returned as a false reflected signal that redirects missiles off-target. Interactive ECM systems are used to intercept voice and wavelength transmissions, analyze the message, alter the message, and retransmit a false or conflicting voice or signal that will confuse, divert, or even cancel an enemy’s mission. Rare earths, including gadolinium, yttrium, and samarium are used in several types of ECM equipment such as the Tail Warning Function (TWF). The TWF is a defensive system that uses a pulsed Doppler radar to detect missiles approaching the aircraft from behind and dispenses defensive countermeasures to defeat the attack by jamming them with ECM. Future Supply­ Future REE supplies are expected to be primarily from the Bayan Obo and Mianning deposits in China. Lesser amounts of REE are expected to be sourced from Australia’s Mt. Weld carbonatite, India’s heavy-mineral sands deposits in the States of Kerala, Orrisa, and Tamil Nadu, and the United States’ Sulphide Queen carbonatite at Mountain Pass, CA.

#### Maintaining modernized military power in all areas is key to hegemony – backs threats, maintains alliances, deters enemies, and creates effective diplomacy.

Holmes 9 (Kim R. Holmes, Distinguished Fellow at The Heritage Foundation, PhD in history from Georgetown University, “Sustaining American Leadership with Military Power”, The Heritage Foundation Special Report #52 on National Security and Defense, 6/1/9, http://www.heritage.org/Research/Reports/2009/06/Sustaining-American-Leadership-with-Military-Power)

Backing Carrots with Sticks Works In the past, when America chose to flex its diplomatic muscle with the backing of its military might, the results were clear. During the Cold War, the foundational document for U.S. strategy toward the Soviet Union, NSC-68, concluded that military power is "one of the most important ingredients" of America's national power. This power gave the U.S. the ability not just to contain and, if necessary, wage war against the Soviet Union and its proxies, but also, during tense diplomatic stand-offs like the Cuban Missile Crisis, to reinforce its political objectives with robust strength. This same equation of military-diplomatic power proved effective in easing tensions during the Taiwan Strait crisis in 1995-1996, when President Bill Clinton sent two aircraft carriers to demonstrate America's firm commitment to the Taiwanese democracy. Similarly, the display of America's military strength against a defiant Saddam Hussein in 2003 convinced Libyan President Moammar Qadhafi to abandon his weapons of mass destruction program. Obama's Risky "Rebalancing" Act Before he became President , Barack Obama raised the important connection between our hard and soft power, arguing that America must "combine military power with strengthened diplomacy" while also building and forging "stronger alliances around the world so that we're not carrying the burdens and these challenges by ourselves."[1] While his statements are correct, his actions as President have done little to demonstrate actual commitment to forging a policy that combines America's military power with its diplomatic authority. For America to be an effective leader and arbiter of the international order, it must be willing to invest in a world-class military by spending no less than 4 percent of the nation's gross domestic product on defense.[2] Unfortunately, President Obama's FY 2010 proposed defense budget and Secretary Robert Gates's vision for "rebalancing" the military are drastically disconnected from the broad range of strategic priorities that a superpower like the United States must influence and achieve. Instead of seeking a military force with core capabilities for the conventional sphere to the unconventional--including a comprehensive global missile defense system[3]--in order to deter, hedge against, and if necessary defeat any threat, Secretary Gates argues that "we have to be prepared for the wars we are most likely to fight."[4] He is echoing the view of President Obama, who has argued that we must "reform" the defense budget "so that we're not paying for Cold War-era weapons systems we don't use."[5] But the conventional Cold War capabilities that this Administration believes we are unlikely to use are the same platforms that provide America with both the air dominance and the blue-water access that is necessary to project power globally and maintain extended deterrence, not to mention free trade. The Importance of Sustaining Military Power The consequences of hard-power atrophy will be a direct deterioration of America's diplomatic clout. This is already on display in the western Pacific Ocean, where America's ability to hedge against the growing ambitions of a rising China is being called into question by some of our key Asian allies. Recently, Australia released a defense White Paper that is concerned primarily with the potential decline of U.S. military primacy and the implications that this decline would have for Australian security and stability in the Asia-Pacific. These developments are anything but reassuring. The ability of the United States to reassure friends, deter competitors, coerce belligerent states, and defeat enemies does not rest on the strength of our political leaders' commitment to diplomacy; it rests on the foundation of a powerful military. Only by retaining a "big stick" can the United States succeed in advancing its diplomatic priorities. Only by building a full-spectrum military force can America reassure its many friends and allies and count on their future support.

#### U.S. military power is key to engagement that prevents regional power vacuums which escalate to nuclear war – effective US leadership is independently key to global cooperation that solves prolif, terrorism, miscalc, economic interdependence, and a laundry list of international problems.

Brooks et al 13 [January/February 2013, Stephen G. Brooks, G. John Ikenberry, and William C. Wohlforth STEPHEN G. BROOKS is Associate Professor of Government at Dartmouth College. G. JOHN IKENBERRY is Albert G. Milbank Professor of Politics and International Af airs at Princeton University and Global Eminence Scholar at Kyung Hee University in Seoul. WILLIAM C. WOHLFORTH is Daniel Webster Professor of Government at Dartmouth College. This article is adapted from their essay "Don't Come Home, America: The Case Against Retrenchment," International Security, Winter 2012-13., “Lean Forward”, Foreign Affairs, http://www.twc.edu/sites/default/files/assets/academicCourseDocs/22.%20Brooks,%20Lean%20Forward.pdf]

Of course, even if it is true that the costs of deep engagement fall far below what advocates of retrenchment claim, they would not be worth bearing unless they yielded greater benefits. In fact, they do. The most obvious benefit of the current strategy is that it reduces the risk of a dangerous conflict. The United States' security commitments deter states with aspirations to regional hegemony from contemplating expansion and dissuade U.S. partners from trying to solve security problems on their own in ways that would end up threatening other states. Skeptics discount this benefit by arguing that U.S. security guarantees aren't necessary to prevent dangerous rivalries from erupting. They maintain that the high costs of territorial conquest and the many tools countries can use to signal their benign intentions are enough to prevent conflict. In other words, major powers could peacefully manage regional multipolarity without the American pacifier. But that outlook is too sanguine. If Washington got out of East Asia, Japan and South Korea would likely expand their military capabilities and go nuclear, which could provoke a destabilizing reaction from China. It's worth noting that during the Cold War, both South Korea and Taiwan tried to obtain nuclear weapons; the only thing that stopped them was the United States, which used its security commitments to restrain their nuclear temptations. Similarly, were the United States to leave the Middle East, the countries currently backed by Washington -- notably, Israel, Egypt, and Saudi Arabia -- might act in ways that would intensify the region's security dilemmas. There would even be reason to worry about Europe. Although it's hard to imagine the return of great-power military competition in a post-American Europe, it's not difficult to foresee governments there refusing to pay the budgetary costs of higher military outlays and the political costs of increasing EU defense cooperation. The result might be a continent incapable of securing itself from threats on its periphery, unable to join foreign interventions on which U.S. leaders might want European help, and vulnerable to the influence of outside rising powers. Given how easily a U.S. withdrawal from key regions could lead to dangerous competition, advocates of retrenchment tend to put forth another argument: that such rivalries wouldn't actually hurt the United States. To be sure, few doubt that the United States could survive the return of conflict among powers in Asia or the Middle East -- but at what cost? Were states in one or both of these regions to start competing against one another, they would likely boost their military budgets, arm client states, and perhaps even start regional proxy wars, all of which should concern the United States, in part because its lead in military capabilities would narrow. Greater regional insecurity could also produce cascades of nuclear proliferation as powers such as Egypt, Saudi Arabia, Japan, South Korea, and Taiwan built nuclear forces of their own. Those countries' regional competitors might then also seek nuclear arsenals. Although nuclear deterrence can promote stability between two states with the kinds of nuclear forces that the Soviet Union and the United States possessed, things get shakier when there are multiple nuclear rivals with less robust arsenals. As the number of nuclear powers increases, the probability of illicit transfers, irrational decisions, accidents, and unforeseen crises goes up. The case for abandoning the United States' global role misses the underlying security logic of the current approach. By reassuring allies and actively managing regional relations, Washington dampens competition in the world's key areas, thereby preventing the emergence of a hothouse in which countries would grow new military capabilities. For proof that this strategy is working, one need look no further than the defense budgets of the current great powers: on average, since 1991 they have kept their military expenditures as a percentage of GDP to historic lows, and they have not attempted to match the United States' top-end military capabilities. Moreover, all of the world's most modern militaries are U.S. allies, and the United States' military lead over its potential rivals is by many measures growing. On top of all this, the current grand strategy acts as a hedge against the emergence regional hegemons. Some supporters of retrenchment argue that the U.S. military should keep its forces over the horizon and pass the buck to local powers to do the dangerous work of counterbalancing rising regional powers. Washington, they contend, should deploy forces abroad only when a truly credible contender for regional hegemony arises, as in the cases of Germany and Japan during World War II and the Soviet Union during the Cold War. Yet there is already a potential contender for regional hegemony -- China -- and to balance it, the United States will need to maintain its key alliances in Asia and the military capacity to intervene there. The implication is that the United States should get out of Afghanistan and Iraq, reduce its military presence in Europe, and pivot to Asia. Yet that is exactly what the Obama administration is doing. MILITARY DOMINANCE, ECONOMIC PREEMINENCE Preoccupied with security issues, critics of the current grand strategy miss one of its most important benefits: sustaining an open global economy and a favorable place for the United States within it. To be sure, the sheer size of its output would guarantee the United States a major role in the global economy whatever grand strategy it adopted. Yet the country's military dominance undergirds its economic leadership. In addition to protecting the world economy from instability, its military commitments and naval superiority help secure the sea-lanes and other shipping corridors that allow trade to flow freely and cheaply. Were the United States to pull back from the world, the task of securing the global commons would get much harder. Washington would have less leverage with which it could convince countries to cooperate on economic matters and less access to the military bases throughout the world needed to keep the seas open. A global role also lets the United States structure the world economy in ways that serve its particular economic interests. During the Cold War, Washington used its overseas security commitments to get allies to embrace the economic policies it preferred -- convincing West Germany in the 1960s, for example, to take costly steps to support the U.S. dollar as a reserve currency. U.S. defense agreements work the same way today. For example, when negotiating the 2011 free-trade agreement with South Korea, U.S. officials took advantage of Seoul's desire to use the agreement as a means of tightening its security relations with Washington. As one diplomat explained to us privately, "We asked for changes in labor and environment clauses, in auto clauses, and the Koreans took it all." Why? Because they feared a failed agreement would be "a setback to the political and security relationship." More broadly, the United States wields its security leverage to shape the overall structure of the global economy. Much of what the United States wants from the economic order is more of the same: for instance, it likes the current structure of the World Trade Organization and the International Monetary Fund and prefers that free trade continue. Washington wins when U.S. allies favor this status quo, and one reason they are inclined to support the existing system is because they value their military alliances. Japan, to name one example, has shown interest in the Trans- Pacific Partnership, the Obama administration's most important free-trade initiative in the region, less because its economic interests compel it to do so than because Prime Minister Yoshihiko Noda believes that his support will strengthen Japan's security ties with the United States. The United States' geopolitical dominance also helps keep the U.S. dollar in place as the world's reserve currency, which confers enormous benefits on the country, such as a greater ability to borrow money. This is perhaps clearest with Europe: the EU's dependence on the United States for its security precludes the EU from having the kind of political leverage to support the euro that the United States has with the dollar. As with other aspects of the global economy, the United States does not provide its leadership for free: it extracts disproportionate gains. Shirking that responsibility would place those benefits at risk. CREATING COOPERATION What goes for the global economy goes for other forms of international cooperation. Here, too, American leadership benefits many countries but disproportionately helps the United States. In order to counter transnational threats, such as terrorism, piracy, organized crime, climate change, and pandemics, states have to work together and take collective action. But cooperation does not come about effortlessly, especially when national interests diverge. The United States' military efforts to promote stability and its broader leadership make it easier for Washington to launch joint initiatives and shape them in ways that reflect U.S. interests. After all, cooperation is hard to come by in regions where chaos reigns, and it flourishes where leaders can anticipate lasting stability. U.S. alliances are about security first, but they also provide the political framework and channels of communication for cooperation on nonmilitary issues. NATO, for example, has spawned new institutions, such as the Atlantic Council, a think tank, that make it easier for Americans and Europeans to talk to one another and do business. Likewise, consultations with allies in East Asia spill over into other policy issues; for example, when American diplomats travel to Seoul to manage the military alliance, they also end up discussing the Trans-Pacific Partnership. Thanks to conduits such as this, the United States can use bargaining chips in one issue area to make progress in others. The benefits of these communication channels are especially pronounced when it comes to fighting the kinds of threats that require new forms of cooperation, such as terrorism and pandemics. With its alliance system in place, the United States is in a stronger position than it would otherwise be to advance cooperation and share burdens. For example, the intelligence-sharing network within NATO, which was originally designed to gather information on the Soviet Union, has been adapted to deal with terrorism. Similarly, after a tsunami in the Indian Ocean devastated surrounding countries in 2004, Washington had a much easier time orchestrating a fast humanitarian response with Australia, India, and Japan, since their militaries were already comfortable working with one another. The operation did wonders for the United States' image in the region. The United States' global role also has the more direct effect of facilitating the bargains among governments that get cooperation going in the first place. As the scholar Joseph Nye has written, "The American military role in deterring threats to allies, or of assuring access to a crucial resource such as oil in the Persian Gulf, means that the provision of protective force can be used in bargaining situations. Sometimes the linkage may be direct; more often it is a factor not mentioned openly but present in the back of statesmen's minds."

#### **Specifically, U.S. is reinvesting in and modernizing our nuclear deterrent now – key to deter China and Russia, but the process is resource-heavy.**

Alexander 14 (David Alexander, Reuters, -U.S. needs modern nuclear deterrent despite high price tag –Hagel-, 1/9/14, http://www.reuters.com/article/2014/01/09/us-usa-nuclear-weapons-idUSBREA0806D20140109)

Defense Secretary Chuck Hagel said on Wednesday the United States had always supported a strong nuclear deterrent and would continue to do so, even as it braces for a nuclear forces overhaul that analysts say could cost $1 trillion over 30 years. -To modernize your nuclear weapons stockpile and assure that they continue to stay secure and safe, it takes money, it takes resources,- Hagel said after touring Sandia National Laboratories and Kirtland Air Force Base, two facilities involved in maintaining the weapons. The U.S. defense chief said upgrading U.S. nuclear warheads and the submarines, bombers and missiles that deliver them would require setting priorities and minding the budget, but he added the country -has always been willing to make that investment and I think it will continue to make it.- The visit was part of a two-day trip to bases supporting U.S. nuclear forces. Hagel travels on Thursday to F.E. Warren Air Force Base in Cheyenne, Wyoming, where he will see intercontinental ballistic missile silos and talk to troops in a nuclear mission that has been troubled by morale problems. Major General Michael Carey was fired as head of the 450-weapon U.S. intercontinental ballistic missile force in October for getting drunk and carousing with Russian women while leading a government delegation to Moscow for talks on nuclear security. Hagel acknowledged the morale problems in the unit and said he planned to underscore the importance of the ICBM mission and thank the troops for their service. -They do feel unappreciated many times,- he said. -They're stuck out in areas where not a lot of attention is paid.- Hagel's visit to the nuclear-related facilities comes as the administration is pushing ahead with ambitious plans to upgrade nuclear systems by modernizing weapons and building new submarines, missiles and bombers to deliver them. The Congressional Budget Office estimated in late December the plans would cost $355 billion over the next decade. The Center for Nonproliferation Studies calculated in a study on Tuesday that the upgrade would cost $1 trillion over 30 years. -These are going to cost much more than people appreciate they are going to cost,- said Jon Wolfsthal, the deputy director of the center in Monterey, California. -Annually we're going to be spending upwards of $33 billion ... once we get to year 11, 12 and onward.- VACUUM TUBES The administration plans to modernize its 1970s-era nuclear bombs - some of which still use vacuum tubes that date to the 1960s - and upgrade them with current electronic components and tail kit guidance systems to make them more accurate. At the same time, the Pentagon is planning to build a dozen new ballistic missile submarines, a new fleet of long-range nuclear bombers and new intercontinental ballistic missiles to replace the current delivery systems, all of which are nearing the end of their useful life. Critics of the administration's plans say the spending is excessive given President Barack Obama's announcement last year that a nuclear posture review had concluded the United States could reduce the size of its arsenal by about a third to between 1,000 and 1,500 deployed atomic weapons. Under the New START treaty Obama negotiated with Russia, the two former Cold War rivals are committed to reduce their deployed strategic nuclear weapons to 1,550 per side by 2018. -In a constrained budget environment, and in a time in which the president has already determined that the United States can reduce our deployed strategic arsenal by a third, ... we don't believe the taxpayer should be asked to build a new triad that's the same size, the same firepower as the triad that we no longer need,- said Daryl Kimball, head of the Arms Control Association. Supporters of the plans say the spending is a small proportion of the overall Defense Department base budget, which has been running at more than $500 billion annually, and they note that maintaining a credible deterrent is necessary to fulfill treaty obligations in Europe and Asia. Clark Murdock, a nuclear weapons expert at the Center for Strategic and International Studies think tank, said Russia had been modernizing the legs of its own triad and had become more reliant upon nuclear arms as its conventional forces weakened. -I don't want the Russians thinking they have a superior nuclear force,- he said, adding it was also important to maintain nuclear forces superior to those of China to fulfill U.S. treaty obligations to Japan, South Korea and others. -This is an uncertain time, particularly in the Asian sphere, particularly with China getting more and more aggressive and assertive about its territorial claims within the region,- Murdock said. -Under those kind of circumstances, that's not a time when you take away the overarching security architecture that's anchored right now on the U.S. nuclear umbrella.

#### Rare earth minerals are critical to modernized U.S. nuclear primacy and first-strike superiority – current tech vulnerability creates ripple effects throughout the defense sector that collapses deterrent capabilities.

Kennedy 10(Jim Kennedy, March 2010, President of Wings Enterprises, “Critical and Strategic Failure of Rare Earth Resources,” <http://www.smenet.org/docs/general/TMS-NMAB-paperV-3.pdf>)

The national defense issues are equally important. **Rare earths are critical components** for military jet engines, **guided missiles and bombs**, electrical countermeasures, anti-missile systems, satellite communication systems and armor, yet **the U.S. has** **no domestic sources.** Innovation Drives Industry – Industry Carries the Economy Advances in Materials Science are a result of tireless innovation; innovation seeking improvements in the performance and characteristics of material properties or a change in their form or function. Much of this work must eventually translate into commercial and military applications. Today many advances in material science are achieved through the application of rare earth oxides, elements and alloys. This group of elements, also known as the lanthanide series, represents the only known bridge to the next level of improved performance in the material properties for many metallurgical alloys, electrical conductivity, and instrument sensitivity and in some cases a mechanical or physical change in function. These lanthanides hold unique chemical, magnetic, electrical, luminescence and radioactive shielding characteristics. Combined with other elements they can help maintain or alter physical and structural characteristics under changing conditions. Today, these rare earth elements are **essential to** every computer hard drive, cell phone, energy efficient light bulb, many automotive pollution control devices and catalysts, hybrid automobiles and most, if not **all, military guidance systems and advanced armor**. Tomorrow, they will be used in ultra capacity wind turbines, magnetic refrigeration, zero emission automobiles, superconductors, sub-light-speed computer processors, nano-particle technologies for material and metallurgical applications, structurally amorphous metals, next generation military armor and TERFENOL-D Radar. America **must lead** in these developments. **The entire U.S. defense system is completely interdependent upon REO enhanced technologies** for our most advanced **weapons guidance systems**, advanced armor, secure communications, radar, advanced radar systems, weapons triggering systems and un-manned Drones. REO dependent weapons technologies are predominantly **represented in our ‘first strike’** and un-manned **capabilities**. This national defense issue is not a case of limited exposure for first-strike capabilities. This **first-strike vulnerability** translates into **risk exposure in every level of our national defense system**, as the system is built around our **presumptive technological and first-strike superiority**. Yet the DoD has abandon its traditional procurement protocols for “strategic and critical” materials and components for weapons systems in favor of “the principles of free trade.”

#### **Credible and capable first-strike threats are key to extended deterrence – Cold War empirics prove nuclear superiority is the causal factor.**

Long 8 (Austin, Deterrence: From Cold War to Long War: Lessons from Six Decades of RAND Research, http://www.dtic .mil/cgi-bin/GetTRDoc?AD=ADA489540&Location=U2&doc=GetTRDoc.pdf)

If credibility in the realm of capabilities is murky despite its tangibility, **credibility in the intangible realm of intentions is much more opaque.** This is particularly true when deterrence is extended beyond the borders of an individual nation-state. Schelling noted, “the difference between the national homeland and everything ‘abroad’ is the difference between **threats that are inherently credible**, if unspoken, and the threats that have to be made credible” (Schelling, 1966, p. 36). This question of level of interest led Schelling to distinguish between a warning and a threat. A warning sought to convey the deterrer’s true and inherent interest. A threat, in contrast, conveyed the deterrer’s commitment to a position that was not clearly in its true and inherent interest (Schelling, 1960, pp. 123–124). The U.S. interest in protecting its population and territorial integrity was assumed to be fundamental. This was termed basic (or type I) deterrence and was (and is) considered a highly credible intention. Declaring an intention to retaliate for an attack on U.S. territory was no threat in Schelling’s formulation; it was a warning. However, the United States wanted **to extend its nuclear deterrence** beyond its own borders. This would require one of Schelling’s threats, and the notion of threat beyond the homeland, referred to as extended (or type II) deterrence, would be perhaps the central concern of deterrence theory in the Cold War. How could the United States convince the Soviet Union that it would attack Moscow if Berlin were attacked, particularly once the Soviet Union could strike Washington in return? William Kaufmann charitably described this process as the “difficult and delicate problem of making intentions credible” (Kaufmann, 1956, p. 19). Bernard Brodie described threats of this nature as having an air of unreality about them (Brodie, 1958, p. 5). Paul Kecskemeti perhaps went furthest of all: Blue [the deterrer], however, must assume unconditional commitments overriding the maximization principle. The strategy of deterrence cannot work unless such unconditional commitments are built into it. To fight back if directly attacked, for example, is an unconditional commitment of this kind; to honor alliance obligations is another . . . it is clear that decisions stemming from unconditional commitments are not rational. We shall say that they represent a non-rational element in political conduct. (Kecskemeti, 1960, pp. 14–19. Emphasis in original.) Basic deterrence was nonrational but credible (though some would even question the credibility of basic deterrence). However, the same could not be said for extended deterrence. … author continues … Yet all of these advantages hinged on the competition remaining a peacetime competition primarily based on the maintenance of the status quo through deterrence. In other words, containment would have to succeed. While the U.S. intention of supporting basic deterrence was quite credible, the intention of extending deterrence to Europe, as discussed previously, has inherently limited credibility. **To shore up this weak credibility in the intention part of the threat, the United States would have to compensate in the capability portion of the threat.** For at least the first two decades of the Cold War, it was widely (though not universally) conceded that the Soviet Union and Warsaw Pact had conventional superiority in Europe. As noted, the United States was not willing to extract the resources required to attain conventional parity, at least for the first few decades of the Cold War**. U.S. capability to deter would thus rest principally on nuclear weapons, including the possibility of** being the **first** to **use** nuclear weapons in a conflict. It would improve deterrence using nuclear weapons both by directly improving elements of capability and in better understanding the thinking of the enemy, to ensure that it developed capabilities that would be feared. One key way in which the credibility of extended deterrence could be improved was to be able to strike the Soviet Union without sustaining a counterblow. This meant that **extended deterrence rested on the bedrock of nuclear superiority** (what Kahn termed a credible first strike) (Kahn, 1961, pp. 27–36). From 1945 to the early 1950s, this was clearly the case, as Soviet long-range nuclear assets were nonexistent or embryonic. As long as this was the case, the Soviet leadership faced the prospect of near-certain annihilation for any conventional aggression. Yet this superiority was seen by many to be “a wasting asset,” and would soon vanish as the Soviets built up their nuclear arsenal. Two ways to handle this problem were readily apparent in theory but difficult in practice: strategic defense and a preemptive disarming or damage-limiting first strike. A third option was to rely on tactical nuclear weapons used on the battlefield. These technical and doctrinal aspects, as well as some that emerged later are the subject of the next chapter. … author continues … As noted previously, many future deterrence scenarios will look very different from the Cold War.1 Yet understanding the logic behind the United States’ adoption of deterrence in the Cold War and the theory and practices that underpinned it during the Cold War will be crucial in the future. Deterrence is an uncomfortable pillar on which to rest security, so it must be widely and well understood if policymakers are to rely on it when other options seem plausible. This chapter will first discuss why deterrence will, in all likelihood, be a common part of U.S. grand strategy in the future. It will then turn to how the theory and practices of the Cold War can be applied to the three categories of possible adversary noted previously (peer/near-peer competitor, regional powers, and significant nonstate actors). Several examples will be provided from the recent and possible future international environments to illustrate the importance of these concepts. … author continues … However, as in the Cold War, **the credible threat of a damage-limiting (or even disarming) first strike by the U**nited **S**tates **helps makes extended deterrence more credible.** This may be particularly important in East Asia, where U.S. guarantees to Japan reduce the likelihood of Japan going nuclear (see Hughes, 2007). **The Chinese, at least for now, appear willing to accept a status quo in which their deterrent is vulnerable to a U.S. first strike** in exchange for Japan remaining nonnuclear.

#### **Nuclear deterrence prevents extinction – deters rogue states, halts proliferation, and deescalates conflicts worldwide – modernization is key.**

Bruner & Cockey 14 (Rear Admiral Barry Bruner, Captain Michael Cockey, Office of the Chief of Naval Operations, Proceedings Magazine Vol. 140/2/1,332, “Now Hear This – We Must Have Nuclear Deterrence”, February 2014, <http://www.usni.org/magazines/proceedings/2014-02/now-hear-we-must-have-nuclear-deterrence>) [Gender Modified]

We are on the precipice of a different world. As Iran pursues nuclear capability, Kim Jong-un rattles his saber while threatening the United States and its regional allies with a nuclear weapon. North Korea’s closest neighbors, South Korea and Japan, are watching closely, knowing we are their shield. They live daily with the threat of an enemy that casually and repeatedly speaks of using nukes and has demonstrated its ability to attack without warning, as it did when its submarine sank the South Korean ship Cheonan on 26 March 2010. Should these countries decide they need their own nuclear weapons, they certainly have the technology and the ability to build them, thereby significantly raising the stakes and the likelihood of war. Enter deterrence. U.S. nuclear deterrence should: • Discourage such attacks against the United States by ensuring the ability to deliver an overwhelming response in kind • Make us resistant to coercion by adversaries using the threat of such an attack to induce concessions • Reduce the chance of large-scale conventional war between nuclear-armed adversaries because of the shared fear of escalation • Extend a guarantee to allies and partners, reducing the proliferation of these weapons and, thus, the likelihood of their use The mission of our nuclear forces is to threaten what an adversary values, thereby averting an attack of this nature on us, our friends, or our regional partners. Deterrence is a matter of perceptions. Its effect takes place in the mind of an opponent living in another country with different values, pressures, and goals. Its purpose is to influence the other[‘s] ~~guy’s~~ decision making, not ours. This is so simple, yet so easy to forget. The world’s foremost experts struggle to decipher Kim Jong-un’s thought process, but he may well believe he cannot survive without these weapons. He may feel that they are his source of power. It is possible he believes he holds the ultimate trump card and threatens using nuclear weapons to influence calculations in future international engagements. Nine countries have this capability. This means conflicts similar to those playing out with North Korea and to a lesser degree Iran will continue to make headlines. The value of our deterrence is that it limits aggressors to threats. They cannot hold us or our partners at risk because we maintain forces that are credible, survivable, and ready. Additionally, our nuclear power may delay hostile action long enough for negotiations to relieve tensions. Kim Jong-un must understand that if he attacks, we will respond with a strong resolve, and that we have an assured second-strike capability. What is more, our readiness influences China and Russia, both nuclear-capable countries with wide ties and significant sway. The credibility of our nuclear forces and our resolve must remain clear to these great powers as they exert pressure on rogue leaders. And we must remember that decisions we make now affect the believability of our deterrence later, as we analyze an uncertain future based on what we know today and our best estimate of coming trends. As our nuclear forces reach the end of their lives, we must take action to keep our capability strong and flexible. President Barack Obama has taken a position consistent with those of many prior administrations. The responsible action now is for us to reaffirm our embrace of a strong nuclear deterrent, thus reducing the chances of proliferation and miscalculation. We must not flinch from this critical test of national character. Our planned 12 ballistic-missile submarines will provide strategic nuclear deterrence into the 2080s. As we debate the merits of various programs over coming years, we must not lose sight of the fact that they guarantee our very existence, deterring potential enemies from using weapons with unimaginable consequences.

### 1AC – Solvency

#### Ocean floor mining solves REM scarcity – extraction is feasible and low cost.

**Green 14** (Tom Green, Robotics Business Review, “Deep Sea Dive for Rare Earth Elements”, 6/28/14, http://www.roboticsbusinessreview.com/article/deep\_sea\_dive\_for\_rare\_earth\_elements)

With over 30 percent of the world’s known REE deposits and by far the cheapest extraction process, China supplies 95 percent of the world’s REEs. However, China, with a rising middle class and booming domestic market, is steadily reducing export quotas. The Word Trade Organization (WTO), of which China is a member, ruled in March of 2014 that China was hoarding and taking unfair advantage of the market. That decision was two years in coming, and now China will appeal the current WTO judgment, which might take another two years. Byron Capital analyst, John Hykawy said “I’ve heard from so many critical materials buyers at large corporations that they want security of supply. And security of supply to them means avoiding Chinese supply at all costs because they got fooled once. They don’t want to get fooled again.” 2- to 3-miles down: REEs not alone on the seabed In the meantime, REEs are again getting to be in short supply, and with demand forecast to progressively increase, the world drastically needs new suppliers of REEs. The London Metal Exchange lists neodymium at $800 Kg; terbium metal at 1,900 Kg; and scandium metal 15,500.00 per Kg. Relatively inexpensive is lanthanum at $13 Kg. However, the battery in a Toyota Prius hybrid requires more than 10kg of lanthanum. Now multiply $130 times millions of Toyota’s and the need for lots of lanthanum comes into focus. Stephen Ball, chief executive officer of Lockheed Martin UK, owner of UK Seabed Resources, told the BBC “It’s another source of minerals – there’s a shortage and there’s difficulty getting access, so there’s strategic value for the UK government in getting an opportunity to get these minerals.” UK Seabed Resources says surveys have revealed huge numbers of nodules – small lumps of rock rich in valuable metals – lying on the ocean floor south of Hawaii and west of Mexico. The exact value of these resources is impossible to calculate reliably, but a leading UN official described the scale of mineral deposits in the world’s oceans as “staggering” with “several hundred years’ worth of cobalt and nickel.” “These tennis-ball sized nodules, found approximately four kilometers (2.5 miles) beneath the ocean’s surface, can provide millions of tons of copper, nickel, cobalt and manganese, as well as rare earth minerals, that are used in the construction, aerospace, alternative energy, and communications industries, among others,” reports Lockheed Martin. The Japan Agency for Marine-Earth Science and Technology and the University of Tokyo confirmed the discovery of a “huge new deposit” on the Pacific seabed, claiming the “deposit can be mined at very low cost and will be able to produce materials that are 20 to 30 times more concentrated than those currently being mined in China.”

#### **The plan completely ends the Chinese monopoly – ocean deposits are massive, highly concentrated, and easily extractable.**

Worstall 13 (Tim Worstall, global metals expert, Fellow at the Adam Smith Institute, Forbes, “Japan's New Rare Earth Discovery: That's China's Monopoly Entirely Blown”, 3/25/13, http://www.forbes.com/sites/timworstall/2013/03/25/japans-new-rare-earth-discovery-thats-chinas-monopoly-entirely-blown/)

Japan has just announced another vast discovery of rare earth bearing materials on the ocean floor. This does rather put an end to any possibility of China having a long term lock on the supply of these vital elements. Japan is celebrating the find of an “astronomically” high level of rare earth deposits at the bottom of the Pacific Ocean, a discovery which will further undermine China’s failing attempts to control the global supply of the substances. You might recall a couple of years back there was a similar Japanese claim. There it was that the plumes from underwater volcanoes were rich in rare earths. This makes good sense as rare earths are constituents of pegmatites, pegmatites come from volcanoes. Thus, given that these are underwater volcanoes, instead of the REs becoming part of the rock they’re floating off through the water as dust. Further, the floating through the water part does some of the separation of the REs from the other components (as surface water does some of the sorting of alluvial deposits as they weather out of the same types of rocks) so there were areas of sediment that were RE rich. This finding is a little different. Almost certainly from the same general source: but now the RE rich material is in nodules just under the silt of the ocean floor. This makes it all rather easier to raise from 5,000 metres down. There is another issue here. Rare earths are usually divided into two sets the lights and the heavies. The new land based mines (Molycorp, Lynas and so on) don’t have much of the heavies in them. So despite our having more REs to play with, China still pretty much has a lock on the heavy ones, the terbium, dysprosium and europium, that we would really like to have more of. This Japanese find is highly enriched in the heavies. Which rather neatly seems to solve that problem. This isn’t something that’s going to go into production this year of course. I’d be amazed if it does so this decade in fact. But it does lift the possibility of China retaining a production monopoly.

## Extensions – Solvency

### Mining Solves

#### **Mining is feasible and effective – only way to ensure supply.**

Hays 14 (Brooks Hays, United Press International, “Deep sea rocks may be future source for rare earth metals”, 4/17/14, http://www.upi.com/Science\_News/2014/04/17/Deep-sea-rocks-may-be-future-source-for-rare-earth-metals/3931397694393/)

In recent years, economists and geologists have begun worrying that the world's supply of rare earth metals will be outpaced by demand, driving up the prices of materials vital to the production of popular electronics like the iPhone and Blackberry. But a new study, published this week in the journal Applied Geochemistry, suggests humans could extract rare earth metals from the solid nodes of iron and manganese found strewn across much of the deep ocean floor. Rare earth elements, or rare earth metals -- including scandium, yttrium, praseodymium and dysprosium -- are a group of 17 naturally occurring elements on the periodic table that share similar chemical properties. They're used to make a variety of household products like florescent light bulbs and color TVs, as well as larger technologies like solar panels and wind turbines. Rare earth metals aren't as rare as their name lets on, but they are hard to come by, as they are widely dispersed amidst the Earth's crust and rarely found in large deposits the way other minerals are. Thus, they take a lot of effort to mine. For these reasons -- and others -- some worry increasing global demand for electronic technologies like smart phones could put rising pressure on the rare earth metals industry. That would be bad news for everyone but China, where 90 percent of the world's rare earth metal extraction currently takes place. However, new research by geochemists at Jacobs University in Germany has revealed a promising technique for extracting, or leaching, rare earth metals from ferromanganese deposits on the ocean floor. "Our pilot work on selective extraction of high-tech metals from marine ferromanganese nodules and crusts," the study's authors wrote, "showed that specific metal-binding organic ligands may have promising potential in future processing technologies of these oxide deposits." Apple, maker of the iPhone, and other tech manufacturers are surely hopeful that these German geochemists are onto to something. If not, they could be forking over larger sums of money to Chinese mining companies in the near future. As Thomas Graedel, professor of geology and industrial ecology at the Yale School of Forestry & Environmental Studies, recently said: “I’m not worried that we’ll run out of rare earth metals, but will we have enough energy at a reasonable price to extract it?”

#### **New deposits are easily extractable and demolish the Chinese monopoly.**

Kurien 11 (Denny Kurien, WSJ, “Rare-Earth Minerals Are Found on Pacific Ocean Floor”, 7/5/11, http://online.wsj.com/news/articles/SB10001424052702304760604576425230759407002)

Japanese explorers have found large deposits of rare-earth minerals on the floor of the Pacific Ocean, British journal Nature Geoscience reported. While the discovery has the potential to alter the dynamics of the global market for the metals, the difficulty of extracting the minerals from the sea floor present a big challenge. The Japanese team found deep-sea mud containing high concentrations of rare-earth elements and yttrium at numerous sites throughout the southeastern and north-central parts of the Pacific Ocean, the journal said in its online edition over the weekend. "We estimate that an area of just one square kilometer [0.39 square mile], surrounding one of the sampling sites, could provide one-fifth of the current annual world consumption of these elements," team leader Yasuhiro Kato, an associate professor of earth sciences at Tokyo University, said in the report. Rare-earth minerals are used in a variety of high-technology products such as electronics, magnets and batteries used in hybrid automobiles and mobile phones. The minerals are recoverable from the mud by acid leaching, making deep-sea mud a highly promising and potentially huge resource for these elements. The Japanese team estimated the size of the discovery at around 80 billion to 100 billion metric tons (88 billion to 101 billion short tons), nearly a thousand times more than current proven reserves of 110 million tons as estimated by the U.S. Geological Survey. Those proven reserves are mostly in China, Russia and the U.S. But China is by far the biggest miner of rare-earth minerals on a commercial scale, making it a dominant supplier with around 95% of the global market. Recent moves by Beijing to restrict exports of rare-earth materials have pushed prices of these minerals up around tenfold from a year ago, spurring searches for alternative sources of supply.

### AT: No Refining

#### New and effective refiniries being built now.

Moore 13 (Tracy A. Moore, CEO & President, CREC, http://www.canadarareearth.com/article/canada-rare-earth-corp-identifies-rare-earth-refinery-development-site-in-the-united-states-110.asp)

Canada Rare Earth Corp. (“CREC” or the “Company”) (TSX.V: LL) is pleased to announce that it has entered into a letter of intent (“LOI”) for the acquisition of its initial site for a rare earth refinery in the Pacific Northwest region of the United States. A location in North America is viewed by CREC as critical to providing stable supply of rare earths to businesses and industries in the United States, Canada, and Mexico. The site is comprised of approximately 100 acres and has excellent infrastructure with readily available power, water, and robust transportation infrastructure. The LOI also includes a right of first refusal to acquire two adjacent land parcels, which are each subject to separate option agreements. The site is zoned for heavy industrial use and is associated with some existing permits for heavy industrial use that will likely need some adaptation. Our preliminary assessment of the location is that it is ideally suited for a rare earth refinery and provides flexibility due to its size, location and characteristics. Our corporate strategy is to establish a vertically integrated rare earth business with multiple refineries in strategic locations. We envision full spectrum (light and heavy) rare earth refineries in as many as five separate countries with combined annual capacity of 15,000 metric tons of separated rare earth oxides. Locations under consideration include North America, four countries in Southeast Asia, two countries in the Caribbean, several in the middle east, and eastern Europe.

## Extensions – Inherency

### AT: No Chinese Monopoly

#### China controls free earth supply

Martyn 12 (Paul Martyn, VP of Supply Strategy at BravoSolution, “Rare Earth Minerals: An End To China's Monopoly Is In Sight”, Forbes, 6/08/2012, http://www.forbes.com/sites/ciocentral/2012/06/08/rare-earth-minerals-an-end-to-chinas-monopoly-is-in-sight/)

Rare earth minerals aren’t as rare as you think. The mining of rare earth minerals – well, that’s another story. China has a stranglehold on the market, mining more than 95% of the world’s production of rare earth minerals. And because these minerals are critical elements to many high-tech products that business, government and consumers use every day – high-def TVs, mobile phones, PCs, wind turbines; even missiles – China’s monopoly puts U.S. manufacturers in a tough spot. China calls the shots on price and availability, and manufacturers take what they can get. The situation became a bit more urgent when China recently announced new restrictions on rare earth exports to the U.S. and other countries. The U.S., Japan and the EU countered by filing a complaint with the World Trade Organization claiming China was choking off global exports for its domestic benefit. The Chinese government stands by its export caps, though, claiming the need to protect national resources and the environmental impact associated with mining. And as what some would consider a “take that” maneuver, China recently handed out additional quotas to 12 companies that had passed environment checks. Politics aside, one thing is clear: high-tech manufacturers are at the mercy of China when it comes to the availability of rare earth minerals.

### AT: Prices Lowering

#### Chinese market control will keep prices rising – rapid and unpredictable fluctuations are why a stable domestic source is necessary.

Topf 14 (Andrew Topf, MA London School of Economics, Rare Earth Investing News, “Is China Setting the Stage for Higher REE Prices?”, 1/6/14, http://rareearthinvestingnews.com/19390-is-china-setting-the-stage-for-higher-ree-prices.html)

The question is, could Chinese consolidation cause rare earth prices to rise again, as they did in 2011? It’s difficult to predict exactly how the consolidation will affect Chinese production of rare earths and their prices, but it’s clear that the Chinese government is sending a signal that it is prepared to tighten global supply. The Ministry of Commerce said in December that it will trim the initial batch of its 2014 export quota for the first time in two years, as per the Wall Street Journal. However as we reported back in September, lessening the import quota does not necessarily have any effect on global rare earths supply, since most of Chinese production is used internally, and Chinese producers have not recently come even close to meeting their export quotas. Perhaps of greater significance, is the government’s intention to lessen the number of rare-earth players in order to further centralize the industry. East Asia Forum reported that in 2010 there were 32 companies with a license to export rare earths, and while a firm number in 2014 is hard to attain, WSJ reports that the rare earths industry in Northern China is dominated by Baotou, and in Southern China, China Minmetals Corporation is the main producer, with other main players including Aluminum Corporation of China Limited and China Non-Ferrous Metal Mining. Whether the new group set up to coordinate production quotas, as described above, will be able to properly police the industry including tackling the endemic smuggling problem, is anyone’s guess, but what we can say is that the government’s attempts this year to crack down on illegal rare earth mining have yielded higher prices. In June, the prices of terbium, praseodymium/neodymium and dysprosium, all rose due to a crackdown on illegal rare earth concentrate in Jiangxi province. A wildcard in the prices game is how non-Chinese production will play into the prices of rare earth metals and oxides. Quoting Roskill Consulting Group, Shanghai Metals Market reported in October that non-Chinese rare earths, particularly light rare earths, are expected to increase 27 percent a year to 101,100 tonnes of rare earth oxides by 2020. However for the more valuable heavy rare earths, most of which are produced in China, the Chinese are expected to continue dominating the market. According to Roskill, Chinese HREE production is expected to grow from 2013 to 2015 despite illegal producers being closed down. “[I]n the rest of the world it is unlikely that operations will make any significant contribution to HREE supply before 2017. Potential producers continue to be afflicted by low rare earth prices and difficulty in obtaining finance in the current climate. This means that a number of projects have either been being pushed back or are being reevaluated,” according to Shanghai Metals Market.

### AT: WTO Ruling

#### WTO ruling doesn’t matter – exports weren’t being cut.

King 14 (Anthony King, Business analyst, Chemistry World, “Analysts shrug off rare earth trade ruling”, 4/2/14, http://www.rsc.org/chemistryworld/2014/04/analysts-shrug-rare-earth-trade-ruling)

There will be no immediate impact on rare earths from the recent World Trade Organization (WTO) ruling against China, say analysts. The WTO deemed that China’s use of export quotas, export taxes and trading restrictions went against its rules. The WTO panel described export duties as unnecessary for environmental protection, and said China’s export quotas were designed to achieve industrial policy goals rather than preserve natural resources. It was dissatisfied with the trading rights restrictions imposed by China. The rare earths, tungsten and molybdenum involved are used in all sorts of electronic goods. The European commission lauded the WTO decision, saying it shows that an extracting country cannot limit the sales of its raw materials to its domestic industry, giving them a competitive age over foreign firms. The EU was a complainant, together with Japan and the US. Analysts met the decision with a shrug, however, predicting no major repercussions. ‘It is an interesting move by the WTO, but academic,’ says senior analyst Kerry Satterthwaite from mineral research group Roskill. ‘The material impact on the market in terms of supply and demand will be negligible.’ China has not met its export quota in the last few years, so there has been no restriction on rare earth exports anyway.

### AT: Recycling Solves

#### **Recycling can’t keep up with demand – still need increased supply to be recycled.**

Paramaguru 13 (Kharunya Paramaguru, citing Thomas Gradael, a professor of geology and geophysics at the Yale School of Forestry & Environmental Studies, Time, “Rethinking Our Risky Reliance on Rare Earth Metals”, 12/20/13, http://science.time.com/2013/12/20/rare-earths-are-too-rare/)

Recycling metal has been advocated by some as a possible way of managing these precious resources—the European Parliament adopted a law curbing dumping of electric waste in 2012, meaning member states will need to collect 45 tons of e-waste for every 100 tons of electronic goods sold in the previous three years by 2016. But Gradael says that for rare earths, recycling will have little impact until our use of these materials first plateaus, as there will not be enough in the recycling stream to keep up with future demand. Instead, Gradael hopes that product designers, material scientists and engineers will fully take into account the risks and limitations of relying on such resources in the future and design new products accordingly. Until that innovation comes, we’ll continue to be exposed to the environmental damage, geopolitical scares and price shocks that come with being reliant on rare earths.

## Extensions – Green Tech

### Ext. – REMs K2 Renewables

#### **REEs are key to future renewable development – supply limits energy efficiency.**

Ali 13 (Saleem H. Ali, Professor of Environmental Studies @ University of Vermont, Director of the Centre for Social Responsibility in Mining @ University of Queensland, Scientific American, “Green Technology Depends on Metals with Weird Names”, 12/17/13, http://www.scientificamerican.com/article/green-technology-depends-on-metals-with-weird-names/)

There's one problem with the silicon age: its magic depends on elements that are far scarcer than beach sand. Some aren't merely in limited supply: many people have never even heard of them. And yet those elements have become essential to the green economy. Alien-sounding elements such as yttrium, neodymium, europium, terbium and dysprosium are key components of energy-saving lights, powerful permanent magnets and other technologies. And then there are gallium, indium and tellurium, which create the thin-film photovoltaics needed in solar panels. The U.S. Department of Energy now counts those first five elements as “critical materials” crucial to new technology but whose supply is at risk of disruption. The department's experts are closely monitoring global production of the last three and likewise the lithium that provides batteries for pocket flashlights and hybrid cars. Earlier this year the DoE took a major step by launching the Critical Materials Institute, a $120-million program to avert a supply shortage. Led by the Ames Laboratory in Iowa, with backing from 17 other government laboratories, universities and industry partners, the institute represents a welcome investment in new research. Unfortunately—like the original Manhattan Project—the program is driven more by the threat of international conflict than by ideals of scientific cooperation. The appropriation made it through Congress almost certainly because of legislators' fear of China's dominance in many critical elements and Bolivia's ambition to become “the Saudi Arabia of lithium.” The worries are probably inevitable. China—historically a prickly partner at best to the U.S.—effectively has much of the world's critical-materials market at its mercy. Take the rare earth elements neodymium, europium, terbium and dysprosium. Despite their name, rare earths are many times more common than gold or platinum and can be found in deposits around the world. In recent years, however, cheap labor and lax environmental regulation have enabled China to corner the global market, mining and refining well over 90 percent of rare earths. At the same time, China has consistently fallen short of its own production quotas. In 2012 the U.S., the European Union and Japan, suspecting China was manipulating the market, filed a formal complaint with the World Trade Organization (WTO). China argues that production cutbacks were necessary for environmental cleanup. At press time, a preliminary ruling in October 2013 against China will likely be appealed. Meanwhile Japan has announced discovery of vast undersea deposits of rare earths, and the Americans, among others, are working to restart their own disused facilities. The shortages won't last. Bolivia's lithium is a different story. The impoverished, landlocked country needs no artificial shortages to boost the market. As the lightest metal, lithium has unmatched ability to form compounds that can store electricity in a minimal weight and volume. At least half the world's known reserves are located in a relatively small stretch of the Andes Mountains, where Bolivia and Argentina share a border with Chile. There's more at stake here than fancy gadgets for the rich. The point of critical materials is to use energy more efficiently. One fifth of the world still lives without access to clean, affordable electricity, a problem that unimpeded supplies of rare earths and lithium could eventually remedy. The hard part will be to prevent old international feuds from getting in the way of that goal. The U.S. can help by embracing the spirit of international development and cooperation. A start could be with the U.S. National Science Foundation, which already maintains an active office in Beijing. We need more such channels to encourage collaborative research on rare earths. Similarly, the strained relations between Washington and La Paz could benefit from signs of sincere U.S. willingness to assist Bolivia in developing the Uyuni salt flats, where a pilot processing plant began operating early in 2013.

#### **Supply shortages increase emissions – no alternatives to REMs for green tech.**

Vidal 12 (John Vidal, environment editor, The Guardian, “Rare minerals dearth threatens global renewables industry”, 1/27/12, http://www.theguardian.com/environment/2012/jan/27/rare-minerals-global-renewables-industry)

Shortages of a handful of rare minerals could slow the future growth of the burgeoning renewable energy industries, and affect countries' chances of limiting greenhouse gas emissions, business leaders were told at the World Economic Forum in Davos this week. Last year, prices of many scarce minerals exploded, rising as much as 10 times over 2010 levels before dropping back, said PricewaterhouseCoopers (PwC). Terbium, yttrium, dysprosium, europium and neodymium are widely used in the manufacture of wind turbines, solar panels, electric car batteries and energy-efficient lightbulbs. But because these "rare earths" are mined almost exclusively in China, it is becoming increasingly difficult and expensive to source them in the required quantities. In a survey of some of the largest clean energy manufacturers, 78% told PwC said they were already experiencing instability of supply of rare metals, and most said they did not expect shortages to ease for at least five years. Currently, 95% of the rare earth minerals needed by clean tech industries come from China which has set strict export quotas. Last year China reserved most for its own for its domestic wind, solar and battery industries, shifting costs to the US and Europe which do not mine any of the minerals. Scarcity of the mineral resources could affect disrupt entire supply chains and countries' attempts to meet emissions targets, said PwC. "The energy sector could face very great problems if the world turns to [renewables] in a big way. In the short term, there will be major supply problems. The availability of these metals will define the growth of these industry sectors. There are so far not many alternatives," said Rob Mathlener, author of a report that urged companies to build future strategies around recycling and reusing resources.

### Ext. – Renewables Solve Econ

#### Renewable development creates massive economic growth – jobs, construction, energy security.

NREL 97 (National Renewable Energy Laboratory, Department of Energy, “Dollars from Sense”, September 1997, http://www.nrel.gov/docs/legosti/fy97/20505.pdf)

E very year, Americans spend about $1900 per person on energy purchases, which is about 8% of the average person’s total expenditures on goods and services in a given year. Of this amount, approximately 40% goes to pay for electricity. Energy purchases represent a significant cost to society nationally and locally and it is important to spend energy dollars in a way that strengthens the economy rather than depleting it. In many cases, energy dollars leave the community, going to regional utilities or suppliers of oil or natural gas. Once those dollars have been spent on importing energy into the community or state, they are not available to foster additional economic activity. Because every dollar spent on imports is a dollar lost from the local economy, these energy imports represent a substantial loss to local companies in terms of income and jobs. The challenge is to meet our insatiable appetite for energy while supporting local economic development. There are two main reasons why renewable energy technologies offer an economic advantage: (1) they are labor intensive, so they generally create more jobs per dollar invested than conventional electricity generation technologies, and (2) they use primarily indigenous resources, so most of the energy dollars can be kept at home. According to the Wisconsin Energy Bureau, “Investment in locally available renewable energy generates more jobs, greater earnings, and higher output ... than a continued reliance on imported fossil fuels. Economic impacts are maximized when an indigenous resource or technology can replace an imported fuel at a reasonable price and when a large percentage of inputs can be purchased in the state.” The Bureau estimates that, overall, renewables create three times as many jobs as the same level of spending on fossil fuels. For states and municipalities with insufficient conventional energy reserves, there is a simple trade-off: import fossil fuels from out-of-area suppliers, which means exporting energy dollars ... or develop indigenous renewable resources, which creates jobs for local workers in the construction, operation, and maintenance of nonfossil power plants and associated industries. The advantages of renewable energy investments are becoming increasingly clear, even in areas that have traditionally favored fossil fuels. “Texas is now a net energy importer,” said Texas Land Commissioner Garry Mauro, speaking at the dedication of the state’s first commercial wind-power project in November 1995. “We can accept our status as a net energy importer ... or we can face the challenge head on and serve as a model to others by embracing new ideas such as wind power and solar energy – Ideas that will make Texas the leader in renewable energy development, energy-efficient building techniques, job creation, and environmental health.” The renewable energy industry provides a wide range of employment opportunities, from high-tech manufacturing of photovoltaic components to maintenance jobs at wind power plants. Through the multiplier effect (see sidebar, left), the wages and salaries earned by industry employees generate additional income and jobs in the local economy. The taxes paid by renewable energy companies also strengthen the area’s economic base, ultimately reducing the burden on individual taxpayers in the community; in fact, generating power from renewable resources contributes more tax revenue than generating the same amount of power from conventional energy sources. As an example, the California Energy Commission has found that solar thermal power plants yield twice as much tax revenue as conventional, gas-fired plants. In some cases, renewable energy investments can enable individuals, companies, or communities to reduce their utility bills. For example, schools can cut costs by using wind power (see page 10), and electric cooperatives can provide cheaper electricity to members with photovoltaics (see page 15). Although the local economic benefits associated with renewable energy investments are evident, it is also important to note that, in the short term, increased reliance on in-state energy resources could reduce the income of energy-exporting states. In the long term, however, the advantages of developing renewable energy technologies go far beyond the local economy – they benefit the country as a whole. The United States leads the world in manufacturing renewable energy power systems, most of which are exported to industrializing nations. The lack of adequate fossil-fuel reserves in many of these countries, combined with their lack of extensive electricity grids, makes renewable energy technologies an increasingly popular choice for power generation. The growing demand for electricity in developing nations can continue to create jobs for U.S. workers – as long as the United States maintains a competitive position in foreign markets by continuing to invest in renewable energy technologies at home.

### Ext. – Renewables Solve Warming

#### Increases in renewable development and energy efficiency are key to solve warming.

Zervos & Coequyt 7 (Arthouros Zervos, European Renewable Energy Council (EREC) John Coequyt, Climate & Energy Unit, Greenpeace USA, “Increasing Renewable Energy in U.S. Can Solve Global Warming” http://www.renewableenergyworld.com/rea/news/article/2007/01/increasing-renewable-energy-in-u-s-can-solve-global-warming-47208)

Landmark analysis released by Greenpeace USA, European Renewable Energy Council (EREC) and other climate and energy advocates shows that the United States can indeed address global warming without relying on nuclear power or so-called "clean coal" -- as some in the ongoing energy debate claim. The new report, "Energy Revolution: A Blueprint for Solving Global Warming" details a worldwide energy scenario where nearly 80% of U.S. electricity can be produced by renewable energy sources; where carbon dioxide emissions can be reduced 50% globally and 72% in the U.S. without resorting to an increase in dangerous nuclear power or new coal technologies; and where America's oil use can be cut by more than 50% by 2050 by using much more efficient cars and trucks (potentially plug-in hybrids), increased use of biofuels and a greater reliance on electricity for transportation. The 92-page report, commissioned by the German Aerospace Center, used input on all technologies of the renewable energy industry, including wind turbines, solar photovoltaic panels, biomass power plants, solar thermal collectors, and biofuels, all of which "are rapidly becoming mainstream."¶ "The world cannot afford to stick to the conventional energy development path, relying on fossil fuels, nuclear, and other outdated technologies. Energy efficiency improvements and renewable energy must play leading roles in the world's energy future." -- Arthouros Zervos of the European Renewable Energy Council and John Coequyt of Greenpeace USA¶ Introduction from the Report The good news first. Renewable energy, combined with energy efficiency, can meet half of the world's energy needs by 2050. This new report, "Energy Revolution: A Blueprint for Solving Global Warming," shows that it is not only economically feasible, but also economically desirable, to cut U.S. CO2 emissions by almost 75% within the next 43 years. These reductions can be achieved without nuclear power, and while virtually ending U.S. dependence on coal. Contrary to popular opinion, a massive uptake of renewable energy and efficiency improvements alone can solve our global warming problem. All that is missing is the right policy support from the President and Congress. The bad news is that time is running out. The overwhelming consensus of scientific opinion is that the global climate is changing and that this change is caused in large part by human activities; if left unchecked, it will have disastrous consequences for Earth's ecosystems and societies. Furthermore, there is solid scientific evidence that we must act now. This is reflected in the conclusions of the Intergovernmental Panel on Climate Change (IPCC), a collaborative effort involving more than 1,000 scientists. Its next report, due for release early this year, is expected to make the case for urgent action even stronger. In the United States there is a groundswell of activity at the local and state levels. Many mayors, governors, and public and business leaders are doing their part to address climate change. But they can only do so much; action is needed at the federal level. Now is the time for a national, science-based cap on greenhouse gas emissions. It's time for a national plan to address global warming. Such a plan will create jobs, improve the security of America's energy supply, and protect Americans from volatile energy prices. It will restore America's moral leadership on the critical international issue of climate change. And real action in the United States will inspire confidence as the rest of the world negotiates future global commitments to address climate change. In addition to global warming, other energy-related challenges have become extremely pressing. Worldwide energy demand is growing at a staggering rate. Over-reliance on energy imports from a few, often politically unstable, countries, and volatile oil and gas prices, have together pushed energy security to the top of the political agenda, while threatening to inflict a massive drain on the global economy. But while there is a broad consensus that we need to change the way we produce and consume energy, there is still disagreement about what changes are needed and how they should be achieved. The Energy Scenario The European Renewable Energy Council (EREC) and Greenpeace International commissioned this report from the Department of Systems Analysis and Technology Assessment (Institute of Technical Thermodynamics) at the German Aerospace Centre (DLR). The Worldwatch Institute was hired to serve as a technical consultant for the U.S. and North American portions of the report. The report presents a scenario for how the United States can reduce CO2 emissions dramatically and secure an affordable energy supply on the basis of steady worldwide economic development through the year 2050. Both of these important aims can be achieved simultaneously. The scenario relies primarily on improvements in energy efficiency and deployment of renewable energy to achieve these goals. The future potential for renewable energy sources has been assessed with input from all sectors of the renewable energy industry, and forms the basis of the Energy [R]evolution Scenario. The Potential for Renewable Energy Renewable energy technologies such as wind turbines, solar photovoltaic panels, biomass power plants, solar thermal collectors, and biofuels are rapidly becoming mainstream. The global market for renewable energy is growing dramatically; global investment in 2006 reached US$38 billion, 26% higher than the previous year. The time window available for making the transition from fossil fuels to renewable energy is relatively short. Today, energy companies have plans to build well over 100 coal-burning power plants across the United States; if those plants are built, it will be impossible to reduce CO2 emissions in time to avoid dangerous climate impacts. But it is not too late yet. We can solve global warming, save money, and improve air and water quality without compromising our quality of life. Strict technical standards are the only reliable way to ensure that only the most efficient transportation systems, industrial equipment, buildings, heating and cooling systems, and appliances will be produced and sold. Consumers should have the opportunity to buy products that minimise both their energy bills and their impact on the global climate. From Vision to Reality This report shows that business as usual is a recipe for climate chaos. If the world continues on its current course, CO2 emissions will almost double by 2050, with catastrophic consequences for the natural environment, the global economy, and human society as a whole. We have the opportunity now to change that course, but the window is narrow and closing quickly. The policy choices of the coming years will determine the world's environmental and economic situation for many decades to come. The world cannot afford to stick to the conventional energy development path, relying on fossil fuels, nuclear, and other outdated technologies. Energy efficiency improvements and renewable energy must play leading roles in the world's energy future. For the sake of a sound environment, political stability, and thriving economies, now is the time to commit to a truly secure and sustainable energy future - a future built on clean technologies, economic development, millions of new jobs, and a livable environment. Arthouros Zervos, European Renewable Energy Council (EREC) John Coequyt, Climate & Energy Unit, Greenpeace USA January 2007

### Ext. – Warming = Extinction

**It’s the only existential threat – outweighs nuclear war**

**Deibel 7** (Terry – international relations at the Naval War College, Foreign Affairs Strategy: Logic of American Statecraft, Conclusion: American Foreign Affairs Strategy Today, p. 387-390)

Finally, there is one major existential threat to American security (as well as prosperity) of a nonviolent nature, which, though far in the future, demands urgent action. It is the threat of global warming to the stability of the climate upon which all earthly life depends. Scientists worldwide have been observing the gathering of this threat for three decades now, and what was once a mere possibility has passed through probability to near certainty. Indeed not one of more than 900 articles on climate change published in refereed scientific journals from 1993 to 2003 doubted that anthropogenic warming is occurring. “In legitimate scientific circles,” writes Elizabeth Kolbert, “it is virtually impossible to find evidence of disagreement over the fundamentals of global warming.” Evidence from a vast international scientific monitoring effort accumulates almost weekly, as this sample of newspaper reports shows: an international panel predicts “brutal droughts, floods and violent storms across the planet over the next century”; climate change could “literally alter ocean currents, wipe away huge portions of Alpine Snowcaps and aid the spread of cholera and malaria”; “glaciers in the Antarctic and in Greenland are melting much faster than expected, and…worldwide, plants are blooming several days earlier than a decade ago”; “rising sea temperatures have been accompanied by a significant global increase in the most destructive hurricanes”; “NASA scientists have concluded from direct temperature measurements that 2005 was the hottest year on record, with 1998 a close second”; “Earth’s warming climate is estimated to contribute to more than 150,000 deaths and 5 million illnesses each year” as disease spreads; “widespread bleaching from Texas to Trinidad…killed broad swaths of corals” due to a 2-degree rise in sea temperatures. “The world is slowly disintegrating,” concluded Inuit hunter Noah Metuq, who lives 30 miles from the Arctic Circle. “They call it climate change…but we just call it breaking up.” From the founding of the first cities some 6,000 years ago until the beginning of the industrial revolution, carbon dioxide levels in the atmosphere remained relatively constant at about 280 parts per million (ppm). At present they are accelerating toward 400 ppm, and by 2050 they will reach 500 ppm, about double pre-industrial levels. Unfortunately, atmospheric CO2 lasts about a century, so there is no way immediately to reduce levels, only to slow their increase, we are thus in for significant global warming; the only debate is how much and how serious the effects will be. As the newspaper stories quoted above show, we are already experiencing the effects of 1-2 degree warming in more violent storms, spread of disease, mass die offs of plants and animals, species extinction, and threatened inundation of low-lying countries like the Pacific nation of Kiribati and the Netherlands at a warming of 5 degrees or less the Greenland and West Antarctic ice sheets could disintegrate, leading to a sea level of rise of 20 feet that would cover North Carolina’s outer banks, swamp the southern third of Florida, and inundate Manhattan up to the middle of Greenwich Village. Another catastrophic effect would be the collapse of the Atlantic thermohaline circulation that keeps the winter weather in Europe far warmer than its latitude would otherwise allow. Economist William Cline once estimated the damage to the United States alone from moderate levels of warming at 1-6 percent of GDP annually; severe warming could cost 13-26 percent of GDP. But the most frightening scenario is runaway greenhouse warming, based on positive feedback from the buildup of water vapor in the atmosphere that is both caused by and causes hotter surface temperatures. Past ice age transitions, associated with only 5-10 degree changes in average global temperatures, took place in just decades, even though no one was then pouring ever-increasing amounts of carbon into the atmosphere. Faced with this specter, the best one can conclude is that “humankind’s continuing enhancement of the natural greenhouse effect is akin to playing Russian roulette with the earth’s climate and humanity’s life support system. At worst, says physics professor Marty Hoffert of New York University, “we’re just going to burn everything up; we’re going to heat the atmosphere to the temperature it was in the Cretaceous when there were crocodiles at the poles, and then everything will collapse.” During the Cold War, astronomer Carl Sagan popularized a theory of nuclear winter to describe how a thermonuclear war between the Untied States and the Soviet Union would not only destroy both countries but possible end life on this planet. Global warming is the post-Cold War era’s equivalent of nuclear winter at least as serious and considerably better supported scientifically. Over the long run it puts dangers from terrorism and traditional military challenges to shame. It is a threat not only to the security and prosperity to the United States, but potentially to the continued existence of life on this planet.

## Extensions – Military Modernization

### Prolif Add-On

#### **Failure to maintain the nuclear arsenal causes worldwide proliferation – lack of deterrence collapses security guarantees.**

Feith 9 (Douglas J., Sr. Fellow Hudson, Abram N. Shulsky, August 3, Wall Street Journal, “Why Revive the Cold War?”, <http://online.wsj.com/>article/SB10001424052970204313604574328430978849134.html)

There is an important connection between proliferation risks and modernization. But the Obama administration seems to have it backwards. If the U.S. fails to ensure the continuing safety and reliability of its arsenal, it could cause the collapse of the U.S. nuclear umbrella. Countries such as Japan, South Korea, Taiwan, Australia and others might decide that their security requires them to acquire their own nuclear arsenals, rather than rely indefinitely on the U.S. The world could reach a tipping point, with cascading nuclear proliferation, as the bipartisan Congressional Strategic Posture Commission warned in its May 2009 report.The Obama administration’s nuclear weapons policies—including its treaty talks with Russia—affect the way America’s friends and potential adversaries view the integrity of the U.S. deterrent. The wrong policies can endanger the U.S. directly. They can also cause other states to lose confidence in the American nuclear umbrella and to seek security in national nuclear capabilities. If that happens, the dangers of a nuclear war somewhere in the world would go up substantially. It would not be the first time a U.S. government helped bring about the opposite of its intended result—but it might be one of the costliest mistakes ever.

#### Prolif causes nuclear war – new proliferants are uniquely unstable.

Kroenig 12 (Matthew Kroenig, Assistant Professor of Government, Georgetown University and Stanton Nuclear Security Fellow, Council on Foreign Relations, June 4, 2012, “The history of proliferation optimism: does it have a future?” http://npolicy.org/article\_file/The\_History\_of\_Proliferation\_Optimism.pdf)

Nuclear War. The greatest threat posed by the spread of nuclear weapons is nuclear war. The more states in possession of nuclear weapons, the greater the probability that somewhere, someday, there will be a catastrophic nuclear war. A nuclear exchange between the two superpowers during the Cold War could have arguably resulted in **human extinction** and a nuclear exchange between states with smaller nuclear arsenals, such as India and Pakistan, could still result in millions of deaths and casualties, billions of dollars of economic devastation, environmental degradation, and a parade of other horrors. To date, nuclear weapons have only been used in warfare once. In 1945, the United States used nuclear weapons on Hiroshima and Nagasaki, bringing World War II to a close. Many analysts point to the sixty-five-plus-year tradition of nuclear non-use as evidence that nuclear weapons are unusable, but it would be naïve to think that nuclear weapons will never be used again simply because they have not been used for some time. After all, analysts in the 1990s argued that worldwide economic downturns like the great depression were a thing of the past, only to be surprised by the dot-com bubble bursting in the later 1990s and the Great Recession of the late Naughts. 53 This author, for one, would be surprised if nuclear weapons are not used again sometime in my lifetime. Before reaching a state of MAD, new nuclear states go through a transition period in which they lack a secure-second strike capability. In this context, one or both states might believe that it has an incentive to use nuclear weapons first. For example, if Iran acquires nuclear weapons, neither Iran, nor its nuclear-armed rival, Israel, will have a secure, secondstrike capability. Even though it is believed to have a large arsenal, given its small size and lack of strategic depth, Israel might not be confident that it could absorb a nuclear strike and respond with a devastating counterstrike. Similarly, Iran might eventually be able to build a large and survivable nuclear arsenal, but, when it first crosses the nuclear threshold, Tehran will have a small and vulnerable nuclear force. In these pre-MAD situations, there are at least three ways that nuclear war could occur. First, the state with the nuclear advantage might believe it has a splendid first strike capability. In a crisis, Israel might, therefore, decide to launch a preventive nuclear strike to disarm Iran’s nuclear capabilities and eliminate the threat of nuclear war against Israel. Indeed, this incentive might be further increased by Israel’s aggressive strategic culture that emphasizes preemptive action. Second, the state with a small and vulnerable nuclear arsenal, in this case Iran, might feel use ‘em or loose ‘em pressures. That is, if Tehran believes that Israel might launch a preemptive strike, Iran might decide to strike first rather than risk having its entire nuclear arsenal destroyed. Third, as Thomas Schelling has argued, nuclear war could result due to the reciprocal fear of surprise attack. 54 If there are advantages to striking first, one state might start a nuclear war in the belief that war is inevitable and that it would be better to go first than to go second. In a future Israeli-Iranian crisis, for example, Israel and Iran might both prefer to avoid a nuclear war, but decide to strike first rather than suffer a devastating first attack from an opponent. Even in a world of MAD, there is a risk of nuclear war. Rational deterrence theory assumes nuclear-armed states are governed by rational leaders who would not intentionally launch a suicidal nuclear war. This assumption appears to have applied to past and current nuclear powers, but there is no guarantee that it will continue to hold in the future. For example, Iran’s theocratic government, despite its inflammatory rhetoric, has followed a fairly pragmatic foreign policy since 1979, but it contains leaders who genuinely hold millenarian religious worldviews who could one day ascend to power and have their finger on the nuclear trigger. We cannot rule out the possibility that, as nuclear weapons continue to spread, some leader will choose to launch a nuclear war, knowing full well that it could result in self-destruction. One does not need to resort to irrationality, however, to imagine a nuclear war under MAD. Nuclear weapons may deter leaders from intentionally launching full-scale wars, but they do not mean the end of international politics. As was discussed above, nuclear-armed states still have conflicts of interest and leaders still seek to coerce nuclear-armed adversaries. This leads to the credibility problem that is at the heart of modern deterrence theory: how can you credibly threaten to attack a nuclear-armed opponent? Deterrence theorists have devised at least two answers to this question. First, as stated above, leaders can choose to launch a limited nuclear war. 55 This strategy might be especially attractive to states in a position of conventional military inferiority that might have an incentive to escalate a crisis quickly. During the Cold War, the United States was willing to use nuclear weapons first to stop a Soviet invasion of Western Europe given NATO’s conventional inferiority. As Russia’s conventional military power has deteriorated since the end of the Cold War, Moscow has come to rely more heavily on nuclear weapons in its strategic doctrine. Indeed, Russian strategy calls for the use of nuclear weapons early in a conflict (something that most Western strategists would consider to be escalatory) as a way to de-escalate a crisis. Similarly, Pakistan’s military plans for nuclear use in the event of an invasion from conventionally stronger India. And finally, Chinese generals openly talk about the possibility of nuclear use against a U.S. superpower in a possible East Asia contingency. Second, as was also discussed above, leaders can make a “threat that leaves something to chance.” 56 They can initiate a nuclear crisis. By playing these risky games of nuclear brinkmanship, states can increases the risk of nuclear war in an attempt to force a less resolved adversary to back down. Historical crises have not resulted in nuclear war, but many of them, including the 1962 Cuban Missile Crisis, have come close. And scholars have documented historical incidents when accidents could have led to war. 57 When we think about future nuclear crisis dyads, such as Iran and Israel, there are fewer sources of stability than existed during the Cold War, meaning that there is a very real risk that a future Middle East crisis could result in a **devastating nuclear exchange**.

### Ext. – REMs K2 Military

#### **REMs are key to all defense capabilities – missiles, communications, mine detection, air and naval power, and magnets in all weapons systems.**

Grasso 13 (Valerie Bailey Grasso, Specialist in Defense Acquisition at Congressional Research Service, MS, National Defense University, Industrial College of the Armed Forces, “Rare Earth Elements in National Defense: Background, Oversight Issues, and Options for Congress”, 12/23/13, http://fas.org/sgp/crs/natsec/R41744.pdf)

It has been estimated that DOD uses less than 5% of domestic consumption of rare earths.21 Rare earth elements are found in two types of commercially available, permanent magnet materials. They are samarium cobalt (SmCo), and neodymium iron boron (NdFeB). NdFeB magnets are considered the world’s strongest permanent magnets and are essential to many military weapons systems. SmCo retains its magnetic strength at elevated temperatures and is ideal for military technologies such as precision-guided missiles, smart bombs, and aircraft. The superior strength of NdFeB allows for the use of smaller and lighter magnets in defense weapon systems. The following illustrations (Figures 1-5) show the use of rare earth elements in a variety of defense-related applications: • fin actuators in missile guidance and control systems, controlling the direction of the missile; • disk drive motors installed in aircraft, tanks, missile systems, and command and control centers; • lasers for enemy mine detection, interrogators, underwater mines, and countermeasures; • satellite communications, radar, and sonar on submarines and surface ships; and • optical equipment and speakers.

### Ext. – Econ Conflict Hurts Relations

#### Economic frictions between the U.S. and China magnify every conflict – every controversy hurts relations more during a trade war.

Ikenson 13 (Dan, Forbes Contributor, Jan. 29, 2013, Retrieved May 24, 2013 from http://www.forbes.com/sites/danikenson/2013/01/29/reading-the-tea-leaves-on-u-s-china-economic-relations/)

That appears to be no longer the case. Although the massive economic relationship – which reached a record half trillion dollars of trade and investment flows in 2012 – is still mutually beneficial, the future of U.S.-China relations based on developments over the most recent six years appears more problematic. Today, it seems, most bilateral economic frictions are magnified through the prism of those geopolitical and philosophical differences, making controversies seem larger and more intractable.

### Ext. – China War = Extinction

#### War with China draws in everyone and goes nuclear – extinction.

Straits Times 2K Straits Times, 6-25-2000, “No one gains in war over Taiwan,”

THE high-intensity scenario postulates a cross-strait war escalating into a full-scale war between the US and China. If Washington were to conclude that splitting China would better serve its national interests, then a full-scale war becomes unavoidable.Conflict on such a scale would embroil other countries far and near and -horror of horrors -raise the possibility of a nuclear war. Beijing has already told the US and Japan privately that it considers any country providing bases and logistics support to any US forces attacking China as belligerent parties open to its retaliation. In the region, this means South Korea, Japan, the Philippines and, to a lesser extent, Singapore. If China were to retaliate, east Asia will be set on fire. And the conflagration may not end there as opportunistic powers elsewhere may try to overturn the existing world order. With the US distracted, Russia may seek to redefine Europe's political landscape. The balance of power in the Middle East may be similarly upset by the likes of Iraq. In south Asia, hostilities between India and Pakistan, each armed with its own nuclear arsenal, could enter a new and dangerous phase. Will a full-scale Sino-US war lead to a nuclear war? According to General Matthew Ridgeway, commander of the US Eighth Army which fought against the Chinese in the Korean War, the US had at the time thought of using nuclear weapons against China to save the US from military defeat. In his book The Korean War, a personal account of the military and political aspects of the conflict and its implications on future US foreign policy, Gen Ridgeway said that US was confronted with two choices in Korea -truce or a broadened war, which could have led to the use of nuclear weapons. If the US had to resort to nuclear weaponry to defeat China long before the latter acquired a similar capability, there is little hope of winning a war against China 50 years later, short of using nuclear weapons. The US estimates that China possesses about 20 nuclear warheads that can destroy major American cities. Beijing also seems prepared to go for the nuclear option. A Chinese military officer disclosed recently that Beijing was considering a review of its "non first use" principle regarding nuclear weapons. Major-General Pan Zhangqiang, president of the military-funded Institute for Strategic Studies, told a gathering at the Woodrow Wilson International Centre for Scholars in Washington that although the government still abided by that principle, there were strong pressures from the military to drop it. He said military leaders considered the use of nuclear weapons mandatory if the country risked dismemberment as a result of foreign intervention. Gen Ridgeway said that should that come to pass, we would see the destruction of civilisation. There would be no victors in such a war. While the prospect of a nuclear Armaggedon over Taiwan might seem inconceivable, it cannot be ruled out entirely, for China puts sovereignty above everything else. Gen Ridgeway recalled that the biggest mistake the US made during the Korean War was to assess Chinese actions according to the American way of thinking.

### AT: Relations Resilient

#### **Now is key to revitalize U.S.-China relations** **– lack of conflict resolution destroys it.**

Tiezzi 3/24 (Shannon Tiezzi, Associate Editor @ The Diplomat, research associate @ the U.S.-China Policy Foundation, “US-China Relations: Thucydidean Trap or Prisoner's Dilemma?”, 3/24/14, http://thediplomat.com/2014/03/us-china-relations-thucydidean-trap-or-prisoners-dilemma/)

U.S.-China relations are at a crossroads. China, now the number two economy in the world (and, depending on who you ask, projected to pass the U.S. as number one in 2016, 2020, 2028, or not at all), has a growing political and military clout commensurate with its economic prowess. Accordingly, China has a strategy for achieving a long-time goal: gaining control of its near seas, at least out to the so-called “first island chain.” The U.S., for its part, is loathe to cede its role as the dominant power in the Asia-Pacific, especially given its alliance relationships with many of China’s close neighbors (including South Korea, Japan, the Philippines, Thailand, and, unofficially of course, Taiwan).¶ But the issue of military or diplomatic dominance in the Asia-Pacific is merely a microcosm of the greater challenge: finding a balance of power between the U.S. and China that is acceptable to both nations. Many analysts have framed this dilemma as the “Thucydidean trap” that arises each time a rising power challenges as established one. To try and escape this historical trap (which has generally led to war), China’s leaders have proposed that China and the U.S. seek a “new type of great power relationship.” But what does this actually mean?¶ At one meeting between the U.S. and Chinese presidents, there were plenty of ideas on how the U.S. and China could work together. According to the American president, “China and the United States share a profound interest in a stable, prosperous, open Asia” so cooperation on the issue of North Korea’s nuclear program is a must. There’s also a need “to strengthen contacts between our militaries, including through a maritime agreement, to decrease the chances of miscalculation and increase America’s ties to a new generation of China’s military leaders.”¶ On a global front, “the United States and China share a strong interest in stopping the spread of weapons of mass destruction and other sophisticated weaponry in unstable regions and rogue states, notably Iran.” In addition, there is “the special responsibility our nations bear, as the top two emitters of greenhouse gases, to lead in finding a global solution to the global problem of climate change.”¶ And the Chinese president offers a broader assessment of what U.S.-China relations should look like: “It is imperative to handle China-U.S. relations and properly address our differences in accordance with the principles of mutual respect, noninterference in each other’s internal affairs, equality, and mutual benefit.”¶ The above are solid (if vague) proposals that offer a blueprint for moving U.S.-China relations forward. But hold on—those quotes weren’t from President Barack Obama and President Xi Jinping. The speakers were President Bill Clinton and President Jiang Zemin during a press conference in 1997. 17 years later, in 2014, these same issues are still being hashed over and trotted out as areas for improvement. Despite a mind-boggling proliferation in high-level meetings, Beijing and Washington have made little progress on the very issues they’ve been highlighting as areas of cooperation for nearly 20 years. Outside of a steady increase in bilateral trade, have U.S.-China relations really progressed since the 1990s? And if not, how can Beijing and Washington be expected to draw closer now, when the competition between the two is even greater?¶ Forget the “Thucydidean trap”—China and the U.S. are caught in the foreign policy version of the “prisoners’ dilemma.” Both understand, on a theoretical level, that the best outcome can only be reached via cooperation. But neither country trusts the other to cooperate (for reasons outlined in detail in a report by Brookings’ Kenneth Lieberthal and Peking University’s Wang Jisi). Both sides can “win” through cooperation, but since neither Beijing nor Washington really believes that will happen, they both seek not to be the country left holding the bag when the other side inevitably turns hostile.¶ There are real reasons for mutual distrust between the U.S. and China—they have competing visions for both the Asia-Pacific region and the international governance structure. In a nutshell, the U.S. is content with the status quo (where America is the widely acknowledged leader of both), while China is not. Beijing wants to take over the leadership role in the Asia-Pacific and have more of a role in global rule-setting, both of which China believes are necessary to complete the “great rejuvenation of the Chinese nation.”¶ Both Chinese and American leaders have acknowledged that a stable (or at least peaceful) U.S.-China relationship is crucial to the welfare of both peoples, and to the world as a whole. But as China’s status as a world power moves from the hypothetical to the real, so will the “Thucydidean trap”—meaning both counties will need to figure out new ways to engage each other that take into account the real dangers of uncontrolled competition. The U.S. in particular needs a new framework for China policy that accounts for China’s increased global stature as well as its global ambitions. Interacting using a paradigm developed in the 1990s won’t cut it anymore.

### AT: No Trade Wars

#### Chinese monopoly causes resource wars – intensifying competition and strict export cutoffs.

Hinten-Nooijen 10 (Dr. Annemarie Hinten-Nooijen, Professor of Economics at Tilburg University in the Netherlands, 3/25/10, “Rare minerals – The treasures of a sustainable economy”, <http://www.tilburguniversity.edu/nl/over-tilburg-university/cultuur-en-sport/cwl/publicaties/beschouwingen/minerals/>)

Driving a hybrid car, using energy from wind turbines or solar panels. That are choices to contribute to the transition to a sustainable economy. Sustainability is the spearhead of many western policy plans. It is regarded as the solution to get out of the crisis. But ironically, the raw materials that are needed for hybrid cars and wind turbines, for our technological industry as a whole, are not that sustainable. Necessarily required minerals like neodymium and indium are rare. And they are not available in the west, China has almost all of them. And having this position of power, China wants to use it. That is about strategy. The high-tech raw materials play a central part in the highly industrialised high-wage countries to survive the global competition by technological excellence. **Will future wars be about minerals instead of oil, territories or water?** THE BONE MARROW OF MODERN ECONOMY **Minerals are an indispensable material pillar** of our current economies and societies. They are the natural product of geological processes and occur in the crust of the planet. Only a fraction of the known minerals exists in greater quantities. Some of these are mined, refined and processed; are broken up into their elemental components, which are recombined into different types of materials. These materials are used to manufacture products that form the backbone of our modern economies: from LCD displays to fighter jets, from smart phones to electric cars. Without minerals, industrial society and modern technology would be inconceivable. That seems unbelievable, because we hardly hear or read about them in the media - whereas several research reports have been published recently. But imagine that by reading this article on printed paper or at your computer screen, minerals like nickel, chromium, molybdenum, gallium, selenium, aluminium, silicon and manganese were needed! And all these elements have to be first extracted from minerals, which in turn need to be mined from the earth's crust. CHINA'S GREEN DEAL In recent years, the world economy has grown enormously, and many new high-tech applications have been made. Moreover, the demand for minerals has exploded. Mining tried to meet the demand. A global competition between countries and companies over rare mineral resources started. Prices have shot up, countries have created strategic stockpiles or imposed export restrictions in order to secure supplies of these valuable resources. Mineral scarcity concerning the industry seems to be more of an economic issue than an issue set by limited resources. Minerals are getting evermore difficult to find and costly to extract - while they are the key to advanced sustainable technologies. Talking about sustainability seems not talking about China, because China is still building many polluting coal-fired power plants, and the social circumstances there are poor. However, recent developments also show progress concerning sustainability. And in a country like China these developments go faster than in many western democracies. Where we in the west talk and dawdle, they think and act strategically. In the United States, president Obama has to explain the Americans that forms of the New Green Deal are inevitable - like the situation in the thirties of the last century, when President Roosevelt made the so-called New Deal to reform the economy. Many Americans do not want the government to influence the market. They radically believe in the free market. In China, by contrast, the ideological separation between market and government does not exist. There is no Wall Street with greedy bankers, no neoconservative Grand Old Party that dreams of the cowboy economy. Decisions are taken quickly. And besides, they have to feed one billion people and develop a country that lived in Mao-ist poverty before. The Chinese are successful, after all, also in creating a sustainable economy: China does not only build old polluting power stations but uses the latest technology, with CO2- catch and -storage. And they are working on alternatives: windmills. In the next five years, they will build 100,000 windmills in the Gobi desert. Did they hate the wind in that area before, now they consider it the new gold. In the north-west area of China, the province of Gansu, the Qilian-mountains pass into the Gobi desert. There China is building the biggest windmill and solar panel park in the world. Six windmill parks with a capacity of ten gigawatts each are built, making China the biggest market of technology of wind energy, defeating the United States. "Red China becomes green China", party officials are saying. China has to grow, and so has the contribution of wind, water and sun at the energy market. This market would be interesting for foreign investments. According to Chinese officials they are welcome and can get subsidies. But, Beijing has decided that 70 percent of the windmills have to be made and designed in China. So it can be questioned if European and American companies have a fair chance in tendering for a contract. China considers itself a developing country and thinks that the western countries should contribute money to China to reduce the CO2 discharge. While America thought that energy saving is not worthwhile, China has taken an enormous energy-technological lead. The authoritarian and undemocratic but intelligent China exposes a variant of the New Deal. THE OPEC OF THE RARE MINERALS The example of China shows us that sustainable economy has everything to do with strategy and power. In a few decades China has been flooding the market of rare metals. The legend goes that president Deng Xiaoping had already predicted this in 1992, during a tour in the south of China: "They [the Mid East] have oil, but we in China have rare minerals". Nowadays, China indeed has 95 percent of the global supply of rare minerals. How did it do that? It was a result of good strategy: in the nineties, China flooded the world market with the rare minerals, although there was not that much demand. The west thought it okay because getting the minerals was a very expensive production process and the environmental legislation was very strict. The western competitors went bankrupt and they closed their mines. China became powerful. One of the centres of the rare mineral supply is around the city Baotou, an industrial city of two million people in Inner Mongolia. Here the states concern exploits almost half of the world storage of neodymium. DISRUPTION OF THE MARKET The lack of raw materials is not particularly a result of the geological availability but of disruptions in the market, because the developments of the world wide demand for rare minerals are not recognised in time - as part of the stormy development of the Chinese economy and the expansion of technical developments - and because the minerals occur in only a few countries. Experts have predicted that in the next few decades the demand of neodymium will increase by a factor 3.8. China uses 60 percent of its exploitation for its own economy. What's more, the Chinese export quota become stricter every year. What happens? Sudden peaks in the demand can lead to speculative price movements and a disruption of the market. "2010 will be the year of the raw materials", according to Trevor Greetham, Asset Allocation Director of Fidelity. Indium, a silver-white metal, which is not found directly in nature, but is a residual product of thin and zinc, is used in LCD displays for TVs, computers, mobile phones, and for led lights and the ultrathin and flexible solar panel. The price of this mineral multiplied tenfold between 2003 and 2006 from 100 to 980 Dollars per kilogram. The price of neodymium decreased from 11.7 dollar per kilogram in 1992 to 7.4 dollar in 1996. The market volume rose. In 2006 almost all of the world production of 137,000 tons came from China. By scaling back the export, prices rose, up to 60 dollar per kilogram in 2007. Imagine that for a hybrid car, like the Toyota Prius or the Mercedes S 400, you need at least 500 grams of neodymium for the magnetic power of the engine; and for the newest generation of wind turbines, the ones that are 16 meters high, you need about 1000 kilogram. That makes 60,000 dollars - for just a little bit of metal! Big business for China. At the same time, China makes further strategic investments: it took an interest in oil and gas fields. In August 2009, PetroChina paid 41 billion dollar to gain access to an enormous field of natural gas in front of the coast of Australia. And in September that year, it obtained a stake of 60 percent in the exploitation of fields of tar sand in Alberta, which might hold one of the biggest oil reserves in the world. And because China considers titanium a growing market, it took an interest of 70 percent in a titanium mine in Kenia - not only to build the Chinese 'Jumbojet', but also to provide Boeing with 2000 tons of titanium each year. By doing so, China might beat the competition in the battle for the market in green technologies. The 'free' market can be questioned. The mineral policies of China and the US both mention the usage of administrative barriers. These nontariff barriers involve regulations that seek to protect the national mineral extraction industry. As a result, it is much harder for foreign companies, if not impossible, to invest and gain a foothold in the national mineral extraction industry in these countries. The search for rare metals has become a global race: a mine in California has also been reopened, the mine of Mountain Pass. In 2008, it was bought by a group of investors, the partnership 'Molycorp Minerals'. The process of bringing the old mines into use costs much time and money. What does this mean for us? Do we get more dependent of China? The 'Innovationplatform' in Rotterdam planned to build a unique windmill park in the sea, further from the coast and in the strongest sea wind than anywhere in the world. To build these windmills, we need rare minerals, the export of which is dominated by China. Part of the project is Darwind, which designed enormous windmills for at sea. But the umbrella company, of which Darwind is part, Econcern, was about to go bankrupt. Then, in mid-August 2009 it was saved by the, surprisingly, Chinese XEMC. THE THREAT OF GEOPOLITICAL INSTABILITY **The transition to a sustainable economy involves underexposed elements like deficiency in minerals and shifting balances of power. They are the ideal receipt for geopolitical instability. The new world order will be a balance between countries that do have particular raw materials and ones that do not. The lack of indispensable minerals sharpens the relations in the world. The access to critical minerals is more and more an issue of national security**, concluded the 'The Hague Centre for Strategic Studies' (HCSS) in its report about the scarcity of minerals (January 2010). The US, Japan and China are making a policy that tries to secure the supply of these raw materials. That will disturb the free market activity. HCSS thinks that **large concerns will, with support of the government, compete more intensively with each other for access to these raw materials,** e.g. by direct investments in areas rich in raw materials. Mineral scarcity will be an issue in the next decades, though it is uncertain when and to what extent. And we have to do something because a change in supply of rare minerals directly affects our current modern lives.

#### **Dependence on Chinese imports causes trade wars.**

Discovery News 13 (“Rare Earth Metals May Trigger Trade Wars”, 2/11/13, http://news.discovery.com/earth/rare-earth-metals-trade-wars.htm)

A handful of countries, including China, dominate the markets for many rare earth metals. More domestic mining and new technologies for extracting the useful metals are needed. Breaking the fossil fuel addiction has a lot of nice benefits, but increasing energy security is not one of them, say researchers studying supply and demand of scarce metals used in making solar panels, wind generators and other alternative energy technologies. There is a long list of elements, mostly rare metals, that are currently mined only in a handful of countries. Without them a lot of new technologies would be stopped in their tracks. What's needed are new sources, which means more mining and better technologies for extracting the useful metals from ores. "We are almost completely dependent on imports," said geologist James Burnell of the Colorado Geological Survey. "Trade wars are developing with the rare earth elements." Burnell is slated to present a paper about the resource demands of alternative energy technologies on Nov. 2 at the annual meeting of the Geological Society of America in Denver. Elements such as gallium, indium, selenium, tellurium and high-purity silicon are needed to make photovoltaic panels. For high capacity batteries like those used in hybrid and electric cars, manufacturers need zinc, vanadium, lithium and rare earth elements. Fuel cells require platinum group minerals. One of the world's biggest suppliers and consumers of scarce metals game is none other than China, said Burnell. They are already beginning to throw their weight around. A possible sign of what's ahead for many important elements may be China's recent announcement about the element indium, which is used to make flat panel displays. China supplies the world with indium, Burnell said. "They put the world on notice that they will stop exporting indium in the future," said Burnell. Another strategic element that China could soon stop exporting is neodymium, which is used to make high-strength magnets for gearless wind generators. China is planning on building 330 giga-watts of wind generator capacity within its own borders. That will require more neodymium than they currently export, Burnell said. Other big players are Chile and Argentina, which supply the Western world with lithium, cobalt and manganese. "The bottom line is that we really have to look for more," said Burnell. There is a disconnect in the public mind about alternative energy tech and the mining required to get the elements needed for those technologies, he added. "There are 30 pounds of rare earth metals in a Prius," said Burnell. Those have to be mined somewhere and if they are not mined domestically, there are energy security issues.

### **AT: Deterrence Fails**

#### Effective deterrence prevents war – Cold War proves – but the ability to maintain continuous modernization is key.

Monroe 9 (Robert R. Monroe, MA in International Relations, Stanford, Sept. 1, Air & Space Power Journal, “A Perfect Storm over Nuclear Weapons”, http://www.airpower.au. af.mil/airchronicles/apj/apj09/fal09/monroe.html)

Unfortunately, all is not well with US nuclear deterrence. Initially, let’s speak of deterrence in general, for it has been a powerful tool since prehistory. Deterrence is based upon fear. We alter the behavior of an adversary by threatening him. First we tell the leadership that taking a specific action, or failing to do so, will produce intolerable consequences for them. Then we convince the adversary, by reinforcing actions, that we have the capability and the will to carry out our threat. Deterrence has proven a highly effective control mechanism since people arrived on the earth. Historically, successful completion of a difficult negotiation on any major issue has always required a threat of force in the background. The greatest benefit of deterrence is the high probability of achieving our objective without resorting to violence. Nuclear deterrence has been with us since the dawn of the nuclear era. It works! We’re all here today because it works. During the 40-plus years of the Cold War—the most deadly confrontation of superpowers in history—nuclear deterrence worked flawlessly. Those decades saw hundreds of major crises and dozens of “hot” wars; yet, the poised readiness of thousands of nuclear weapons, fine tuned to destroy the Soviets’ most valued assets, was completely effective in preventing the use of a single nuclear weapon. But to keep deterrence working during those years, we had to redesign our nuclear weapons continually to meet changing conditions, threats, strategy, technology, Soviet leadership, and so on. Our nuclear deterrence brought about the end of the Soviet Union and the defeat of communism without violence.

### **AT: Interdependence**

#### **Interdependence means nothing when core interests are at stake – resource competition can still cause war.**

Kwang 14 (Han Fook Kwang, Straits Times/Asia News Network, Crimea crisis tests theory of peace from economic interdependence, 3/22/14, http://www.chinapost.com.tw/commentary/the-china-post/special-to-the-china-post/2014/03/22/403374/p2/Crimea-crisis.htm)

The secession of Crimea from Ukraine and its annexation by Russia is a test of one of the great promises of the 21st century.¶ The hope was that in an interdependent world, nations that are closely linked to one another economically and to the international order are less likely to go to war against each other. Countries that trade don't go to war, is the popular saying. There is too much at stake and too little to gain from upsetting the global apple cart.¶ This hypothesis gained greater credence after the end of the Cold War and the subsequent globalization of trade and investment, which brought unprecedented economic benefits to many countries.¶ So entrenched is this thinking that it is often prescribed as a forward-looking policy option to ensure a more stable and peaceful world.¶ For example, many people argue that deepening the economic links between China and Japan is the best way to reduce the chances of a major conflagration between the two Asian giants, which have many festering disputes still unresolved.¶ Perhaps the best example is the European Union, which was conceived after the devastation of World War II to forge closer integration among the countries in Europe to lessen the risk of future wars.¶ Indeed, Russia itself seemed to embrace this philosophy.¶ That was why — many pundits believed — it spent an eye-popping US$51 billion to hold the recently concluded Winter Olympics in Sochi.¶ It was a remarkable though expensive coming-out party for President Vladimir Putin, comparable to what the 2008 Olympic Games meant for China.¶ As the eighth-largest economy in the world, Russia is well-enmeshed in the global grid, and it is home to many international corporations.¶ It had seemed so different from the old Soviet Union, whose tanks rolled into Hungary in 1956 and Czechoslovakia in 1968, indifferent to what the rest of the world thought.¶ There was no stock exchange in Moscow then and the ruble wasn't freely convertible.¶ In contrast, the Moscow stock index plunged more than 10 percent at the height of the military stand-off in Crimea last week, and the Russian currency fell to its lowest level against the U.S. dollar.¶ Russia has clearly changed, and it is as exposed to the vagaries of the international marketplace as any free market economy.¶ Does Ukraine prove this was all a fanciful dream, and that when push comes to shove, the interdependent world be damned?¶ Will Russia's move lead to it being isolated from the West and forced to carve out its own sphere of influence? Or does it reinforce the interdependent theory, given the limited nature of the economic sanctions being threatened by both the United States and Europe?¶ In fact, the argument cuts both ways. By ruling out any military options and focusing on economic sanctions, the West is tacitly acknowledging a limit to what it can do without putting the world at risk of a major conflict.¶ But the U.S. and Europe are also divided on how far to go to inflict economic punishment, with Europe reluctant to go beyond visa restrictions and asset freezes.¶ London, for example, isn't keen to do more because of the billions in Russian money that has found its way into the British financial center.¶ Does this prove that the interdependent theory works, putting a natural brake even as tensions ratchet up?¶ For the moment, yes, though it might still be too early to say.¶ Why then did Russia embark on this risky move?¶ Listening to Putin on Tuesday, it seems clear that there are issues that Russia considers as part of its core interest, with Ukraine firmly part of it.¶ “Crimea has always been an integral part of Russia in the hearts and minds of people,” he said.¶ According to an account in The New York Times, he cast himself as the guardian of the Russian people, even those beyond its post-Soviet borders, restoring a part of an empire that the collapse of the Soviet Union left abandoned.¶ Russia, he declared, was prepared to defend itself from any further interference in areas it considers part of its core security.¶ The message was warmly received by the Russian people, with one report saying that Putin's domestic popularity had risen to 70 percent as a result.¶ The reality is that a large part of how the Ukraine crisis unfolds, and its potential for upsetting international peace and security, depends on how the Russian strongman defines his country's place in the world.¶ That's both a product of the past — the historical narrative that Putin summoned so forcefully in his speech — and of the future, which is about his vision of Russia in the brave new world.¶ For us in Asia, the Ukraine crisis is an ominous reminder of the fragility of international peace, especially when countries with complicated histories have problems that touch on their core interests. The growing tension between China and Japan over territorial issues — and their different interpretations of their troubled past — is the most obvious example.¶ It is not hard to imagine a future Chinese or Japanese leader invoking the same nationalistic arguments that Putin did to press their case.¶ Will realpolitik always trump economics? Where core interests are involved, the evidence so far hasn't been encouraging. For all its interdependence, it is still a dangerous world.

## Notes – Which Elements?

#### The three categories identified in the plan text have some overlap, but together contain nineteen total elements:

Lanthanum

Cerium

Praseodymium

Neodymium

Samarium

Europium

Gadolinium

Terbium

Dysprosium

Holmium

Erbium

Thulium

Ytterbium

Lutetium

Yttrium

Lithium

Tellurium

#### Rare earth elements

http://www.periodni.com/rare\_earth\_elements.html

The International Union of Pure and Applied Chemistry (IUPAC) defines rare earth elements (REE) or rare earth metals as a collection of seventeen chemical elements in the periodic table, specifically the fifteen lanthanides (Note: Even though lanthanoid means 'like lanthanum' and as such should not include lanthanum it has become included through common usage.) plus scandium and yttrium (Figure 1). Scandium and yttrium are considered rare earth elements since they tend to occur in the same ore deposits as the lanthanides and exhibit similar chemical properties. The rare earth elements are often described as being a 'light-group rare earth element' (LREE) or 'heavy-group rare earth element' (HREE). The definition of a LREE and HREE is based on the electron configuration of each rare-earth element. The LREE are defined as lanthanum, atomic number 57 through gadolinium, atomic number 64. The LREE have in common increasing unpaired electrons, from 0 to 7. The HREE are defined as terbium, atomic number 65 through lutetium, atomic number 71, and also yttrium, atomic number 39. All of the HREE are differ from the first eight lanthanides in that they have 'paired' electrons (a clockwise and counter-clockwise spinning election). The LREE have no paired electrons. Yttrium is included in the HREE group based on its similar ionic radius and similar chemical properties. Scandium is also trivalent; however, its other properties are not similar enough to classify it as either a LREE or HREE.

#### Critical & near-critical elements

Critical Materials Institute, US DOE, https://cmi.ameslab.gov/materials/factsheet

What are “critical” and “near critical” materials? Certain substances provide essential capabilities, such as light emission or magnetism, and when the supply of one of these substances is at risk, it becomes a “critical” material. The Department of Energy has identified five rare-earth materials – neodymium, europium, terbium, dysprosium and yttrium – as critical materials, materials essential for America’s transition to clean-energy technologies. The DOE has identified two additional elements, lithium and tellurium, as “near-critical” materials. These non-rare-earth materials play an indispensable role in emerging energy storage and battery technologies, such as hybrid and electric vehicles, wind turbines, and photovoltaic thin films.

# Negative

## Inherency Neg

### New Mining Now

#### Domestic mining is coming now – bill is in the Senate with bipartisan support.

Committee on Natural Resources 13 (Committee Legislation, “National Strategic and Critical Minerals Production Act of 2013 (H.R. 761)”, http://naturalresources.house.gov/legislation/?legislationid=341628)

National Strategic and Critical Minerals Production Act of 2013 (H.R. 761) Status: Passed the House on September 18, 2013 with a bipartisan vote of 246-178. Awaits consideration by the Senate. The National Strategic and Critical Minerals Production Act (H.R. 761), sponsored by Rep. Mark Amodei (NV-02), allows the United States to more efficiently develop our Nation's strategic and critical minerals, such as rare earth elements, that are vital to job creation, American economic competitiveness and national security. Currently, the United States is nearly 100 percent reliant on foreign countries, such as China, for rare earth elements and other critical and strategic minerals that are vital components to America’s manufacturing sector. Due to onerous government red-tape, frivolous lawsuits and a burdensome permitting process, good-paying mining jobs have disappeared overseas and put American manufacturing jobs at the mercy of foreign sources. This bill is a bipartisan action plan that cuts red-tape by streamlining the permitting process for mineral development to create jobs and develop rare earths and critical minerals in America - rather than allowing our dependence on foreign countries to threaten our economy and the jobs that depend on these vital raw ingredients. H.R. 761 sets the total review process for permitting at 30 months. Currently, it can take over a decade to acquire all the government permits for a mineral production project. According to one report, currently, the United States ranks last with Papua New Guinea out of twenty-five major mining countries in permitting delays, and towards the bottom regarding government take and social issues affecting mining. Without critical mineral ingredients, entire sectors of our economy, from construction and manufacturing to high-tech to national defense to medical care, are put at risk. Critical and strategic minerals are fundamental components of technologies and everyday items ranging from cell phones, computers, medical equipment, renewable energy products, high-tech military equipment, building materials, and common household products. The timely and environmentally responsible development of our Nation’s vast supplies of strategic and critical minerals will create good-paying mining jobs, boost local economies and provide security to America’s economy. Respects and upholds all environmental laws while setting timelines that ensure these laws do not become tools for lawsuits or bureaucrats to block or delay responsible projects. This legislation is similar to H.R. 4402 that passed the House last Congress with bipartisan support.

#### US mining will undermine China’s REM monopoly

**Savitz 12** (Eric Savitz Forbes Staff. Forbes “Rare Earth Minerals: And End To China’s Monopoly” June 8, 2012 http://www.forbes.com/sites/ciocentral/2012/06/08/rare-earth-minerals-an-end-to-chinas-monopoly-is-in-sight/)

North America is finally waking up to the consequences of a continued Chinese monopoly and has quietly invested significant money and resources into mining rare earth minerals domestically. In fact, there are currently 35 rare earth projects at various stages in development outside of China (according to advisory firm Technology Metals Research). The most mature operation is right here in North America – Molycorp‘s Mountain Pass, California mine. Several other mines are also progressing nicely in the Northeast Corridor of Canada. A major shift is taking place, and it’s possible that 15-20 percent of rare earth minerals could be mined outside of China by the end of 2020. In addition to loosening China’s stranglehold on the market, even a 10 percent shift in market share would have a positive ripple effect on the U.S. manufacturing and technology sectors: An increase in U.S. high-tech production could spur the revival of other domestic manufacturing. Many U.S. companies are already relocating portions of their high-tech production from China to North America for cost savings – mainly due to high logistics and rising labor costs. Add to that the multitude of unpredictable global supply risks – like we saw with the Japan earthquake and tsunami – a new and steady source of domestic rare earth minerals could accelerate a U.S. manufacturing revival. New electronics suppliers will push product innovation. There’s been a woeful lack of innovation coming out of China and Japan over the past few years. Instead of new genre-defining products, the most highly sought-after products we see every holiday season tend to be the “latest and greatest” – third and fourth generations of already existing products. Without major competition from new suppliers trying to make a splash in the tech scene, the big boys are able to maintain the status quo. Increased competition will create more products and lower prices: a welcome win for innovation-starved consumers. More consumer-friendly prices. An upswing in U.S. high-tech manufacturing also has the potential to drive product prices down. The obvious reasons: logistic costs and supply risk. Beyond saving on transportation costs, U.S. companies will be able to strike longer deals with suppliers – thus locking in better terms. Domestic sources must operate under U.S. business regulations, making them a more predictable and reliable source of supplies.

### AT: Chinese Monopoly

#### **No Chinese monopoly now – Lynas plant solves.**

Worstall 12 (Tim Worstall, global metals expert, Fellow at the Adam Smith Institute, Forbes, “The Rare Earth Crisis Is Over”, 12/11/12, http://www.forbes.com/sites/timworstall/2012/12/11/the-rare-earth-crisis-is-over/)

Or at least we’re getting to the beginning of the end of the rare earth supply crisis. Lynas has actually switched on its separation plant in Malaysia: Lynas has been embroiled in lengthy environmental and safety disputes with local residents since construction began two years ago. Its $800 million plant, which opponents say is environmentally hazardous, began operations late last month after long delays caused by legal challenges and safety disputes. That one plant will, when fully operational, provide some 15-20% of world demand. Which is a serious bite into the previous Chinese 97% dominance of the industry. Just to give a bit of background. Rare earths are not rare (nor are they earths). There are deposits all over the place and there are streams of rare earths that can be extracted from all sorts of waste products of other mining processes. I’m opening (admittedly, a very small one) myself in February 2013. China has supplied, in recent decades, up to 97% of the world’s usage. Quite simply because no one else could be bothered to do the mining at the prices that the Chinese were willing to accept. China also has 35% of the world’s reserves: but that’s a very misleading number. This doesn’t mean 35% of all the rare earths there are. It means 35% of all the deposits that anyone has bothered to go out and measure, weigh, drill and test. “Reserve” is not at all the same as resources. The availability of the basic ore just isn’t a major problem. The actual choke point in the industry is in the separation of the ore into the various different lanthanides. This is, to use a technical term from the industry, “a right pain” to do. And that’s what that $800 million plant does. It’s the first major new one outside China. There’s a partial one with Molycorp (it cannot, or at least does not, separate them all) in California, a few small ex-Soviet ones being restored and an old one in France. So this plant opening up really does rather create a breach in that dyke of Chinese dominance of the industry.

#### Chinese rare earth mineral monopoly falling.

**Topf 13** (Andrew Topf editor at MINING.com Investing News “Rare Earths Outlook: Prices to Rise, Western Producers Cutting Into Chinese Monopoly” December 23, 2013 http://rareearthinvestingnews.com/19313-rare-earths-outlook-prices-to-rise-western-producers-cutting-into-chinese-monopoly.html)

“New suppliers like Molycorp and Lynas are already significant-enough producers to influence the price (Molycorp is running at about 7,000 tons per year, compared to China’s current run rate of some 20,000+ tons per year), and with ongoing investment likely to raise this figure, China’s days of having a stranglehold on the market are, if not over, then at least severely limited.” Of course, this is all dependent on Molycorp and Lynas reaching stated production goals. Both companies have faced roadblocks in this respect, with Molycorp falling behind its stated 15,000 tonnes per year target, and Lynas also admitting output trouble. Referring specifically to magnets, a large market for rare earth metals, Molycorp spokesman Jim Sims told Bloomberg that Molycorp and Lynas “are increasing their production so there’s a growing diversity of supply for those rare-earth materials that eventually go into the magnets.” The article also said that while China is the primary source of REEs for the production of magnets, a U.S.-Japanese joint venture “has developed the technology for producing these magnets and is building a facility in Japan,” referring to a JV signed in 2010 between Molycorp and Hitachi (TYO:6501) to produce neodymium-iron-boron (NdFeB) alloys and magnets. The news from the Pentagon came a few months after Russia announced that it would spend $1 billion to produce rare earths in a bid to reduce its dependence on China. The funds would come from Rostec and and investment company IST Group, which agreed to plow a billion dollars into Russian rare earths production by 2018. Then there’s the step that Greenland took in October of lifting its moratorium on rare earth and uranium mining. The ban’s removal is likely to attract foreign investors to the Arctic landmass in search of its prized rare earth deposits. While that could still be a ways off, there is already a sign that Chinese rare earths dominance is under threat. An article last Friday in Xinhua, the Chinese state-owned news agency, said that Chinese rare rare earth miners are being forced to phase out excessive production capacity as overseas suppliers chip away at their dominance in the global market.

#### China’s monopoly is collapsing now – increased international production and prices.

**Investor Intel 13** (Invester Intel “Breaking China’s stranglehold on the Rare Earths Industry” December 23, 2013 http://investorintel.com/rare-earth-intel/breaking-chinas-stranglehold-rare-earths-industry/)

There is light on the horizon. Like everything in life, nothing stands still. And the REE industry is no different. The importance of rare earths has only grown as emerging markets increase their demand for technologies made with it, as does the renewable energy industry. When it comes to China’s monopoly of rare earths, it appears we are approaching the beginning of the end. As the Chinese REE stranglehold is reduced through increased production from the only two non-Chinese sources currently, and Chinese rare earth prices rise due to continued efforts by the Chinese government to address environmental concerns and stop illegal rare earth mining, rare earth investors could potentially see higher prices in 2014, which in turn would translate into higher stock prices for REE companies. According to the Pentagon’s latest assessment of the rare earths industry, China’s virtual monopoly on the industry has been disrupted. In it’s annual report to Congress (dated October 2013, but not yet been released publicly), the Pentagon report (prepared by Elana Broitman, the Defense Department’s top official on the US industrial base), stated: “Global market forces are leading to positive change in rare earth supply chains, and a sufficient supply of most of these materials likely will be available to the defense industrial base. Prices for most rare earth oxides and metals have declined approximately 60% from their peaks in the summer of 2011.” In 2011, Congress required the Pentagon to examine the use of rare earth materials in defense applications, determine if non-U.S. supplies might be disrupted, and suggest ways to ensure long-term availability, as well as secure an assured source of supply by 2015.

### **Recycling Solves**

#### Rare earth recycling is increasing now and solves scarcity.

Clancy 14 (Heather Clancy, Forbes, “Rare Earth Recycling Takes On New Luster”, 2/25/14, http://www.forbes.com/sites/heatherclancy/2014/02/25/rare-earth-recycling-takes-on-new-luster/)

One notable example is Honda’s move last year with Japan Metals & Chemicals (JMC) to start reusing rare earth substances in used nickel-metal hydride (NiMH) batteries in new ones—after announcing its intention to do so in 2012. The automaker is using molten salt electrolysis to pull the materials out of an oxide extracted from the batteries: removing about 80 percent of what’s in the original. Those substances are being supplied to a battery maker, which is using them for negative electrode materials in hybrid vehicle batteries. Belgian company Umicore actually made this commercially feasible even earlier than Honda. The company, which processes more than 350,000 tons of every year including industrial by-products, catalysts and end-of-life products, has a partnership with chemical company Rhodia that is also focused on NiMH. Rechargeable NiMH batteries are found in everything from cordless phones, toys and games to power tools to hybrid electric vehicles. There’s about 1 gram (0.03 ounces of rare earth stuff in an AAA battery and up to 2 kilograms (4 pounds, 6 ounces) in a hybrid EV battery. Lithium-ion batteries don’t have the same recovery potential. “In the short term, we think recycling will be one of the few rare earth plays with upward motion,” writes cleantech analyst Dallas Kachan, in his 2014 annual predictions blog. “Why? Much of the industry has been focused on new mines to meet growing demand for rare earths. But recycling of rare earths is gaining momentum quietly, and stands to accelerate in 2014 given the increasing costs of mining and cost and schedule overruns at high profile sites like Molycorp’s Mountain Pass California mine. Aside from Honda, two other big companies talking up rare earth recycling and recovery include Mitsubishi Electric (which is recovering them from air-conditioning compressors) and Veolia Environmental Services (which plans to begin recovering them from 15 million pounds of e-waste and lamps at a facility in West Bridgewater, Mass.) Rare earths are not just important for green technologies—such as thin solar panels that are hungry for tellurium or fuel cells that need platinum for their catalyst or wind turbine gearboxes—but also in smartphones and other mobile gadgets. According to the U.S. Environmental Protection Agency, recycling 1 million mobile phones could recover a tremendous volume of rare and precious metals: 50 pounds of gold, 550 pounds of silver, 20 pounds of palladium and 20,000 pounds of copper. Their circuit boards can also contain coltan, zinc, beryllium, the list goes on.

## Solvency Neg

### No Solvency – Extraction

#### Mining won’t displace China – deposits aren’t extractable even with funding.

Goodier 11 (Rob Goodier, M.A., Journalism: Science, Health and Environment Reporting Program @ NYU, Popular Mechanics, “Why Deep-Sea Rare-Earth Metals Will Stay Right Where They Are—For Now”, 7/8/11, http://www.popularmechanics.com/science/environment/why-deep-sea-rare-earth-metals-will-stay-right-where-they-are-for-now)

This week, scientists at the University of Tokyo announced a discovery that threatened to break China's control over the world's supply of rare-earth metals, used to build electronics: They found the metals in vast expanses of mud on the floor of the Pacific Ocean in 78 sites. Predictably, the news made a worldwide media splash. A close look at the deep-sea mining industry, however, suggests that miners in China will not be out of work soon. And the world has known about metals on the ocean floor for decades. Rare-earth magnets and other components are used in electronic devices from computers to electric cars, and demand has surged in the last decade. Mines in China supply nearly all of the world's rare-earths metal, and the Chinese government uses its near monopoly as political leverage: It was accused of halting rare-earth exports to Japan during a territorial dispute last year, and also announced a restriction of worldwide rare-earth exports, which sent chills through markets and tech companies. The United States, Canada, Brazil and other countries possess reserves, and the U.S. used to produce a sizeable percentage of the world supply before shutting many mines because of environmental concerns. Those deposits may be exploited in the next few years, though China's huge deposits and existing infrastructure guarantee that it will lead production for the near future. So it's no surprise that the Japanese study, which appears in the journal Nature Geoscience, sparked excitement. The researchers took core samples at 78 sites around Hawaii, Tahiti and other locations in the eastern South Pacific and central North Pacific, finding rare-earth concentrations of about 0.2 percent. At that concentration, they reported, just 1 square kilometer of sea-floor mud could provide one-fifth of the world's annual rare-earth consumption, making it a "highly promising huge resource for these elements." Without context, though, that kind of statement is misleading, says Frank Sansone, an oceanography professor at the University of Hawaii, Manoa. "It's not just something that you can glibly say, 'Oh, this is a huge amount of rare earth,'" he says. "It would be difficult to exploit. There's a big difference between saying that the elements exist in large amounts and being able to appropriately, economically and environmentally extract that material." John Wiltshire, director of the Hawaii Undersea Research Laboratory, also at the University of Hawaii, Manoa, puts it even more bluntly. "The truth of the matter is, nobody's going to mine in the deep sea—even if somebody massively funds this—for a minimum of a decade," he says. The startup cost could run from $1 to $2 billion. It's not that we don't know how to work in the deep sea, Wiltshire points out. Telegraph cables were first laid across the ocean floor 150 years ago, and at least three industries—telecommunications, oil drilling and diamond mining—have become adept at deep-sea engineering. Today, telecom cables are buried in deep trenches to guard against accidents such as damage by fishing trawlers. Oil rigs drill thousands of feet into the sea floor from floating platforms. And a handful of companies mine diamonds in several hundred feet of water off the coast of Namibia in southwest Africa; they drop remote-controlled seafloor crawlers to the ocean floor that, like pool cleaners, inhale sediment that is pumped to an overhead ship through a hose. Deep-sea rare-earth deposits aren't new, either. Wiltshire, Sansone and many other researchers have been studying mineral deposits—including rare-earth mineral deposits—on the ocean floor since their careers began. "I published a paper on this 25 years ago. The first papers that indicated rare-earth minerals go back 30 or 35 years," Wiltshire says. "People have been talking about mining manganese nodules since the 1960s," Manganese nodules are conglomerates of metallic particles—rare-earth metals and others—stripped from the water over eons, and they were the hot undersea mining topic of decades past. Manganese nodule mining even provided cover for a bit of Cold War intrigue in 1974, when a $350 million deep-sea drilling ship built by one of Howard Hughes' companies supposedly went looking for a deposit to develop. In fact, the ship was being used by the CIA to look for a Soviet nuclear sub that had sunk off Oahu in the 1960s. Today, though, as in the 1970s, cost and time remain enormous hurdles to mining these deposits. Wiltshire says a proposed deep-sea mine off the coast of Papua New Guinea illustrates the challenges that would face anyone looking to start a rare-earth operation in the Pacific Ocean. Nautilus Minerals plans to build a $157 million ship to support what could be the world's only deep-sea gold and copper mine. The ship, floating about three miles above the seafloor, will need to be gigantic: 680 feet long, with a deadweight capacity of more than 20,000 tons and bunks for up to 160 people.

### No Solvency – Refining

#### Mining isn’t sufficient – inability to refine into usable forms maintains Chinese reliance.

Kennedy 14 (Jim Kennedy, President of Wings Enterprises, internationally recognized expert on rare earths, “China’s Rare Earth Monopoly and its formidable impact on U.S. National Defense”, 1/29/14, http://investorintel.com/rare-earth-intel/chinas-rare-earth-monopoly-formidable-impact-u-s-national-defense/)

U.S. mining of rare earths is pointless if it isn’t able to refine these resources into value added DoD ready commodities: China maintains a global monopoly on all refining, metallurgical, alloy and component technologies as well as OEM and material science facilities. U.S., Japanese, Korean and European businesses are relocating to China to secure access to these materials, including those used by National Defense. For instance, in 2013, GM established a new Technology Science Laboratory in China. As an example, a Chinese corporation was granted approval to purchase the assets of A123 battery. A123 was the centerpiece of the Obama Administration’s drive for electric vehicles. The fact that GE moved the last of its medical imaging divisions to China provides further proof. Over the last decade nearly every major multinational relying on REE’s has moved its manufacturing facilities, established subsidiaries and suppliers in China to gain access to these materials in what is a labor and technology drain that is undermining our economic future. The U.S. should establish in my opinion – a fully integrated REE refinery value chain in North America.

## Green Tech Neg

### AT: REMs K2 Solar

#### REMs aren’t key to solar – new tech means earth-abundant materials can be used.

ACS 12 (American Chemical Society, “New solar panels made with more common metals could be cheaper and more sustainable”, 8/21/12, http://www.acs.org/content/acs/en/pressroom/newsreleases/2012/august/new-solar-panels-made-with-more-common-metals-could-be-cheaper-and-more-sustainable.html)

With enough sunlight falling on home roofs to supply at least half of America’s electricity, scientists today described advances toward the less-expensive solar energy technology needed to roof many of those homes with shingles that generate electricity. Shingles that generate electricity from the sun, and can be installed like traditional roofing, already are a commercial reality. But the advance ― a new world performance record for solar cells made with “earth-abundant” materials ― could make them more affordable and ease the integration of photovoltaics into other parts of buildings, the scientists said. Their report was part of a symposium on sustainability at the 244th National Meeting & Exposition of the American Chemical Society, the world’s largest scientific society, being held here this week. Abstracts of other presentations appear below. “Sustainability involves developing technology that can be productive over the long-term, using resources in ways that meet today’s needs without jeopardizing the ability of future generations to meet their needs,” said Harry A. Atwater, Ph.D., one of the speakers. “That’s exactly what we are doing with these new solar-energy conversion devices.” The new photovoltaic technology uses abundant, less-expensive materials like copper and zinc ― “earth-abundant materials” ― instead of indium, gallium and other so-called “rare earth” elements. These substances not only are scarce, but are supplied largely by foreign countries, with China mining more than 90 percent of the rare earths needed for batteries in hybrid cars, magnets, electronics and other high-tech products. Atwater and James C. Stevens, Ph.D., described successful efforts to replace rare earth and other costly metals in photovoltaic devices with materials that are less-expensive and more sustainable. Atwater, a physicist at the California Institute of Technology, and Stevens, a chemist with The Dow Chemical Company, lead a partnership between their institutions to develop new electronic materials suitable for use in solar-energy-conversion devices. Atwater and Stevens described development and testing of new devices made with zinc phosphide and copper oxide that broke records for both electrical current and voltage achieved by existing so-called thin-film solar energy conversion devices made with zinc and copper. The advance adds to evidence that materials like zinc phosphide and copper oxide should be capable of achieving very high efficiencies, producing electricity at a cost approaching that of coal-fired power plants. That milestone could come within 20 years, Atwater said. Stevens helped develop Dow’s PowerHouse Solar Shingle, introduced in October 2011, which generates electricity and nevertheless can be installed like traditional roofing. The shingles use copper indium gallium diselenide photovoltaic technology. His team now is eyeing incorporation of sustainable earth-abundant materials into PowerHouse shingles, making them more widely available. “The United States alone has about 69 billion square feet of appropriate residential rooftops that could be generating electricity from the sun,” Stevens said. “The sunlight falling on those roofs could generate at least 50 percent of the nation’s electricity, and some estimates put that number closer to 100 percent. With earth-abundant technology, that energy could be harvested, at an enormous benefit to consumers and the environment.”

#### Zinc cells solve solar development without REMs.

Wilton 12 (Pete Wilton, University of Oxford, “Zinc could replace 'rare earths' in solar cells, screens”, 6/28/12, http://www.ox.ac.uk/media/science\_blog/120628.html)

Costly and rare indium, used in solar cells, and screens for TVs, computers, and mobile phones, could be replaced with abundant and cheap zinc, scientists at Oxford University believe. Because of its combination of high transparency and high electrical conductivity indium tin oxide (ITO) dominates the global market for coatings for solar cells and LCD displays. The market for the material is estimated to be worth $26.8bn by 2016. However indium, a so-called 'rare earth' metal, is relatively scarce and expensive and its supply is tightly controlled - China produces over half of the world’s indium and recently reduced its export quotas. Peter Edwards and colleagues at Oxford University's Department of Chemistry have been investigating how to make alternative coatings from cheaper, more abundant materials. Their research has come up with new coatings based on silicon-doped zinc oxide. The Oxford team has been working closely with Isis Innovation, the University's technology transfer company, to protect and commercialise its research. As Isis report today, the team has just won the Materials Science Venture Prize, awarded by the Worshipful Company of Armourers and Brasiers, to develop manufacturing processes for the group's coatings. Peter comments: 'Zinc is a much more abundant material than indium, and our silicon-doped zinc oxide material offers electrical conductivities around two thirds of ITO, with comparable optical transparency. In addition to solar cells, our new coating could be used with lighting displays and LCD displays used in smart phones, computers and televisions.’

### AT: Renewables Solve

#### Renewable energy doesn’t help the economy or the environment – not competitive and draws away from other sectors.

Frondel et al 9 (Frondel, Manuel, Professor for Energy Economics and Applied Econometrics at Ruhr-Universität Bochum; Ritter, Nolan; Schmidt, Christoph M.; Vance, Colin (2009) : “Economic impacts from the promotion of renewable energy technologies: the German experience”, Ruhr economic papers, No. 156, http://www.econstor.eu/bitstream/10419/29912/1/614062047.pdf)

Although renewable energies have a potentially beneficial role to play as part of Germany’s energy portfolio, the commonly advanced argument that renewables confer a double dividend or “win-win solution” in the form of environmental stewardship and economic prosperity is disingenuous. In this article, we argue that Germany’s principal mechanism of supporting renewable technologies through feed-in tariffs, in fact, imposes high costs without any of the alleged positive impacts on emissions reductions, employment, energy security, or technological innovation. First, as a consequence of the prevailing coexistence of the Renewable Energy Sources Act (EEG) and the EU Emissions Trading Scheme (ETS), the increased use of renewable energy technologies triggered by the EEG does not imply any additional emission reductions beyond those already achieved by ETS alone, if the two instruments are not coordinated. This is in line with Morthorst (2003), who analyzes the promotion of renewable energy usage by alternative instruments using a three-country example. If not coordinated, this study’s results suggest that renewable support schemes are questionable climate policy instruments in the presence of the ETS. Second, numerous empirical studies have consistently shown the net employment balance to be zero or even negative in the long run, a consequence of the high opportunity cost of supporting renewable energy technologies. Indeed, it is most likely that whatever jobs are created by renewable energy promotion would vanish as soon as government support is terminated, leaving only Germany’s export sector to benefit from the possible continuation of renewables support in other countries such as the US. Third, rather than promoting energy security, the need for backup power from fossil fuels means that renewables increase Germany’s dependence on gas imports, most of which come from Russia. And finally, the system of feed-in tariffs stifles competition among renewable energy producers and creates perverse incentives to lock into existing technologies. Hence, although Germany’s promotion of renewable energies is commonly portrayed in the media as setting a “shining example in providing a harvest for the world” (The Guardian 2007), we would instead regard the country’s experience as a cautionary tale of massively expensive environmental and energy policy that is devoid of economic and environmental benefits. As other European governments emulate Germany by ramping up their promotion of renewables, policy makers should scrutinize the logic of supporting energy sources that cannot compete on the market in the absence of government assistance

### AT: Econ Decline = War

#### No conflict from economic decline – recession proves that resilience and interdependence solve.

Barnett 09 (Thomas P.M, Senior Managing Director of Enterra Solutions LLC, Contributing Editor and Online Columnist for Esquire “The New Rules: Security Remains Stable Amid Financial Crisis,” Aprodex, Asset Protection Index, 8/25/09 <http://www.aprodex.com/the-new-rules--security-remains-stable-amid-financial-crisis-398-bl.aspx>)

When the global financial crisis struck roughly a year ago, the blogosphere was ablaze with all sorts of scary predictions of, and commentary regarding, ensuing conflict and wars -- a rerun of the Great Depression leading to world war, as it were. Now, as global economic news brightens and recovery -- surprisingly led by China and emerging markets -- is the talk of the day, it's interesting to look back over the past year and realize how globalization's first truly worldwide recession has had virtually no impact whatsoever on the international security landscape. None of the more than three-dozen ongoing conflicts listed by GlobalSecurity.org can be clearly attributed to the global recession. Indeed, the last new entry (civil conflict between Hamas and Fatah in the Palestine) predates the economic crisis by a year, and three quarters of the chronic struggles began in the last century. Ditto for the 15 low-intensity conflicts listed by Wikipedia (where the latest entry is the Mexican "drug war" begun in 2006). Certainly, the Russia-Georgia conflict last August was specifically timed, but by most accounts the opening ceremony of the Beijing Olympics was the most important external trigger (followed by the U.S. presidential campaign) for that sudden spike in an almost two-decade long struggle between Georgia and its two breakaway regions. Looking over the various databases, then, we see a most familiar picture: the usual mix of civil conflicts, insurgencies, and liberation-themed terrorist movements. Besides the recent Russia-Georgia dust-up, the only two potential state-on-state wars (North v. South Korea, Israel v. Iran) are both tied to one side acquiring a nuclear weapon capacity -- a process wholly unrelated to global economic trends. And with the United States effectively tied down by its two ongoing major interventions (Iraq and Afghanistan-bleeding-into-Pakistan), our involvement elsewhere around the planet has been quite modest, both leading up to and following the onset of the economic crisis: e.g., the usual counter-drug efforts in Latin America, the usual military exercises with allies across Asia, mixing it up with pirates off Somalia's coast). Everywhere else we find serious instability we pretty much let it burn, occasionally pressing the Chinese -- unsuccessfully -- to do something. Our new Africa Command, for example, hasn't led us to anything beyond advising and training local forces. So, to sum up: No significant uptick in mass violence or unrest (remember the smattering of urban riots last year in places like Greece, Moldova and Latvia?); The usual frequency maintained in civil conflicts (in all the usual places); Not a single state-on-state war directly caused (and no great-power-on-great-power crises even triggered); No great improvement or disruption in great-power cooperation regarding the emergence of new nuclear powers (despite all that diplomacy); A modest scaling back of international policing efforts by the system's acknowledged Leviathan power (inevitable given the strain); and No serious efforts by any rising great power to challenge that Leviathan or supplant its role. (The worst things we can cite are Moscow's occasional deployments of strategic assets to the Western hemisphere and its weak efforts to outbid the United States on basing rights in Kyrgyzstan; but the best include China and India stepping up their aid and investments in Afghanistan and Iraq.) Sure, we've finally seen global defense spending surpass the previous world record set in the late 1980s, but even that's likely to wane given the stress on public budgets created by all this unprecedented "stimulus" spending. If anything, the friendly cooperation on such stimulus packaging was the most notable great-power dynamic caused by the crisis. Can we say that the world has suffered a distinct shift to political radicalism as a result of the economic crisis? Indeed, no. The world's major economies remain governed by center-left or center-right political factions that remain decidedly friendly to both markets and trade. In the short run, there were attempts across the board to insulate economies from immediate damage (in effect, as much protectionism as allowed under current trade rules), but there was no great slide into "trade wars." Instead, the World Trade Organization is functioning as it was designed to function, and regional efforts toward free-trade agreements have not slowed. Can we say Islamic radicalism was inflamed by the economic crisis? If it was, that shift was clearly overwhelmed by the Islamic world's growing disenchantment with the brutality displayed by violent extremist groups such as al-Qaida. And looking forward, austere economic times are just as likely to breed connecting evangelicalism as disconnecting fundamentalism. At the end of the day, the economic crisis did not prove to be sufficiently frightening to provoke major economies into establishing global regulatory schemes, even as it has sparked a spirited -- and much needed, as I argued last week -- discussion of the continuing viability of the U.S. dollar as the world's primary reserve currency. Naturally, plenty of experts and pundits have attached great significance to this debate, seeing in it the beginning of "economic warfare" and the like between "fading" America and "rising" China. And yet, in a world of globally integrated production chains and interconnected financial markets, such "diverging interests" hardly constitute signposts for wars up ahead. Frankly, I don't welcome a world in which America's fiscal profligacy goes undisciplined, so bring it on -- please! Add it all up and it's fair to say that this global financial crisis has proven the great resilience of America's post-World War II international liberal trade order. Do I expect to read any analyses along those lines in the blogosphere any time soon? Absolutely not. I expect the fantastic fear-mongering to proceed apace. That's what the Internet is for.

### AT: Warming

#### No impact to warming – empirics

Willis et. al 10 [Kathy J. Willis, Keith D. Bennett, Shonil A. Bhagwat & H. John B. Birks (2010): 4 °C and beyond: what did this mean for biodiversity in the past?, Systematics and Biodiversity, 8:1, 3-9, <http://www.tandfonline.com/doi/pdf/10.1080/14772000903495833>, ]

The most recent climate models and fossil evidence for the early Eocene Climatic Optimum (53–51 million years ago) indicate that during this time interval atmospheric CO2 would have exceeded 1200 ppmv and tropical temperatures were between 5–10 ◦ C warmer than modern values (Zachos et al., 2008). There is also evidence for relatively rapid intervals of extreme global warmth and massive carbon addition when global temperatures increased by 5 ◦ C in less than 10 000 years (Zachos et al., 2001). So what was the response of biota to these ‘climate extremes’ and do we see the large-scale extinctions (especially in the Neotropics) predicted by some of the most recent models associated with future climate changes (Huntingford et al., 2008)? In fact the fossil record for the early Eocene Climatic Optimum demonstrates the very opposite. All the evidence from low-latitude records indicates that, at least in the plant fossil record, this was one of the most biodiverse intervals of time in the Neotropics (Jaramillo et al., 2006). It was also a time when the tropical forest biome was the most extensive in Earth’s history, extending to mid-latitudes in both the northern and southern hemispheres – and there was also no ice at the Poles and Antarctica was covered by needle-leaved forest (Morley, 2007). There were certainly novel ecosystems, and an increase in community turnover with a mixture of tropical and temperate species in mid latitudes and plants persisting in areas that are currently polar deserts. [It should be noted; however, that at the earlier Palaeocene–Eocene Thermal Maximum (PETM) at 55.8 million years ago in the US Gulf Coast, there was a rapid vegetation response to climate change. There was major compositional turnover, palynological richness decreased, and regional extinctions occurred (Harrington & Jaramillo, 2007). Reasons for these changes are unclear, but they may have resulted from continental drying, negative feedbacks on vegetation to changing CO2 (assuming that CO2 changed during the PETM), rapid cooling immediately after the PETM, or subtle changes in plant–animal interactions (Harrington & Jaramillo, 2007).]

### AT: Warming = Extinction

**Won’t cause extinction – ecosystems will adapt.**

**Center for the Study of Carbon Dioxide and Global Change** - Archived 8 March **’11**, Surviving the Unprecedented Climate Change of the IPCC, http://www.nipccreport.org/articles/2011/mar/8mar2011a5.html

(Citing: Willis, K.J., Bennett, K.D., Bhagwat, S.A. and Birks, H.J.B. 2010. 4°C and beyond: what did this mean for biodiversity in the past? Systematics and Biodiversity 8: 3-9.)

In a paper published in Systematics and Biodiversity, Willis et al. (2010) consider the IPCC (2007) "predicted climatic changes for the next century" -- i.e., their contentions that "global temperatures will increase by 2-4°C and possibly beyond, sea levels will rise (~1 m ± 0.5 m), and atmospheric CO2 will increase by up to 1000 ppm" -- noting that it is "widely suggested that the magnitude and rate of these changes will result in many plants and animals going extinct," citing studies that suggest that "within the next century, over 35% of some biota will have gone extinct (Thomas et al., 2004; Solomon et al., 2007) and there will be extensive die-back of the tropical rainforest due to climate change (e.g. Huntingford et al., 2008)." On the other hand, they indicate that some biologists and climatologists have pointed out that "many of the predicted increases in climate have happened before, in terms of both magnitude and rate of change (e.g. Royer, 2008; Zachos et al., 2008), and yet biotic communities have remained remarkably resilient (Mayle and Power, 2008) and in some cases thrived (Svenning and Condit, 2008)." But they report that those who mention these things are often "placed in the 'climate-change denier' category," although the purpose for pointing out these facts is simply to present "a sound scientific basis for understanding biotic responses to the magnitudes and rates of climate change predicted for the future through using the vast data resource that we can exploit in fossil records." Going on to do just that, Willis et al. focus on "intervals in time in the fossil record when atmospheric CO2 concentrations increased up to 1200 ppm, temperatures in mid- to high-latitudes increased by greater than 4°C within 60 years, and sea levels rose by up to 3 m higher than present," describing studies of past biotic responses that indicate "the scale and impact of the magnitude and rate of such climate changes on biodiversity." And what emerges from those studies, as they describe it, "is evidence for rapid community turnover, migrations, development of novel ecosystems and thresholds from one stable ecosystem state to another." And, most importantly in this regard, they report "there is very little evidence for broad-scale extinctions due to a warming world." In concluding, the Norwegian, Swedish and UK researchers say that "based on such evidence we urge some caution in assuming broad-scale extinctions of species will occur due solely to climate changes of the magnitude and rate predicted for the next century," reiterating that "the fossil record indicates remarkable biotic resilience to wide amplitude fluctuations in climate."

## Military Mod Neg

### Modernization Now

#### **The nuclear weapons program is being maintained and modernized now – no loss in usage capability.**

Collina 14 (Tom Z. Collina, Research Director @ the Arms Control Association, “U.S. Nuclear Modernization Programs”, 1/14, https://www.armscontrol.org/factsheets/USNuclearModernization)

For Fiscal Year (FY) 2014, nuclear weapons activities in the Department of Energy’s National Nuclear Security Administration (NNSA), which oversees the U.S. nuclear stockpile and production complex, will be funded at $7.78 billion, an 11.6 percent increase over FY 2013 at a time when other defense budget accounts are in decline.[ii]¶ The U.S. military is in the process of modernizing all of its existing strategic delivery systems and refurbishing the warheads they carry to last for the next 20-30 years or more. These systems are in many cases being completely rebuilt with essentially all new parts.¶ This effort includes:¶ Modernized Strategic Delivery Systems: U.S. nuclear delivery systems are undergoing continual modernization, including complete rebuilds of the Minuteman III ICBM and Trident II SLBM. The service lives of Trident Ohio-class ballistic missile submarines are being extended. Additionally, a new submarine, the SSBNX, which will replace the existing Ohio-class ballistic missile submarines, is undergoing development and is expected to cost about $100 billion, according to the Congressional Budget Office. The B-2 strategic bomber, a relatively new system, is being upgraded, as is the B-52H bomber. The Air Force is also planning a new Long Range Bomber and a new cruise missile to replace the Air-Launched Cruise Missile (ALCM).¶ Refurbished Nuclear Warheads: The U.S. stockpile of nuclear warheads and bombs is continually refurbished through NNSA’s Life Extension Program (LEP). Existing warheads are certified annually to be safe and reliable. The JASON panel of independent scientists has found “no evidence” that extending the lives of existing U.S. nuclear warheads would lead to reduced confidence that the weapons will work. The panel concluded in its September 2009 report that “Lifetimes of today's nuclear warheads could be extended for decades, with no anticipated loss in confidence.”[iii] The United States does not need to resume nuclear test explosions, nor does it need to build new “replacement” warhead designs to maintain the reliability and effectiveness of the U.S. nuclear stockpile.¶ Modernized Production Complex: The nuclear weapons production complex is being modernized as well, with new facilities planned and funded. The FY 2014 NNSA budget includes $309 million for the Uranium Processing Facility (UPF) at Oak Ridge, Tennessee. The total construction cost for UPF is estimated at $6.5 – 7.5 billion, according to an independent study conducted by the Corps of Engineers.[iv]

### Deterrence Fails

#### **No impact to nuclear deterrence – threats aren’t credible and conventionals solve.**

Gerson 10(Michael S. Gerson, research analyst at the Center for Naval Analyses (CNA), in Alexandria, Virginia, “The Next Step for U.S. Nuclear Policy,” International Security, Vol. 35, No. 2 (Fall 2010), pp. 7–47) http://www.mitpressjournals.org/doi/pdf/10.1162/ISEC\_a\_00018

The threat to use nuclear weapons first may lack credibility in the minds of many current and potential adversaries. The first-use option can contribute to deterrence and security only if the opponent believes that there is at least some reasonable chance that the United States might actually use nuclear weapons first. In today’s international security environment, no state can doubt that the United States possesses sufficient nuclear capabilities to inºict severe costs, but a state reasonably could question whether the United States has the requisite political resolve to use nuclear weapons first, especially over stakes that do not directly threaten U.S. national security interests.84 The incredibility of U.S. first-use threats rests on several grounds. First, as discussed above, there are no realistic military contingencies that would require the first use of nuclear weapons. Absent a compelling military need to use nuclear weapons first, U.S. nuclear threats are unnecessary and will therefore lack credibility. Conversely, U.S. conventional capabilities are highly credible and have been demonstrated in numerous post–Cold War operations to be more than sufficient to inºict substantial costs, and it is unlikely that an opponent would believe that the United States would use nuclear weapons if there were effective conventional options. In fact, the emphasis in recent years on developing a new generation of high-precision, long-range conventional weapons—exemplified by the U.S. military’s Prompt Global Strike mission, which seeks to develop conventional capabilities that can strike targets anywhere in the world within one hour85—demonstrates how hard the United States is working to preclude having to use nuclear weapons in any contingency short of a response to a nuclear attack. Second, there are potentially significant political costs to the United States for using nuclear weapons first, especially regarding U.S. efforts to lead the charge against nuclear proliferation, and these costs diminish the credibility of U.S. first use.86 Given that the United States has traditionally been the most globally active nation in the realm of nonproliferation, the threat to use nuclear weapons first and risk undermining U.S. leadership of the NPT regime, legitimizing the use of nuclear weapons, and potentially spurring further proliferation will likely ring hollow. It would be difficult, if not impossible, for the United States to reconcile its first use of nuclear weapons with continued leadership on nonproliferation. Despite the national and international security benefits of U.S. activism against the further spread of nuclear weapons, an unintended consequence of these efforts has likely been to further weaken the credibility of U.S. threats to use nuclear weapons first. Third, whereas implicit or explicit nuclear threats from rogue states have some inherent credibility because of the belief that these regimes are fanatical and risk acceptant—that is why, after all, they are rogues—in the nuclear realm the United States is generally perceived to be rational, risk averse, and sensitive to civilian casualties and other collateral damage.87 These beliefs reduce the credibility of first-use threats by further strengthening the view that U.S. political leaders are bound by the “nuclear taboo,” a normative constraint against using nuclear weapons that emerged after World War II.88 For the United States, the nuclear taboo inºuences the range of military options considered by decisionmakers by imposing criteria of proportionality and domestic and international legitimacy on the use of force, and such constraints are not lost on current and potential adversaries.89 Unlike rogue states, the United States does not readily benefit from the “rationality of irrationality,”90 which increases the credibility of nuclear threats by convincing decisionmakers that the opponent might not make logical cost-benefit calculations, and therefore might not be constrained by the logic of appropriateness on which the nuclear taboo depends. Despite the contention of one high-level advisory panel to U.S. Strategic Command arguing that “it hurts to portray ourselves as too fully rational or cool-headed,” and that “the fact that some elements may appear to potentially be ‘out of control’ can be beneficial,” U.S. policymakers have been reluctant to send these kinds of signals in the nuclear arena since the end of the Cold War.91

### AT: Hegemony

#### There’s no correlation between U.S. military power and stability

Fettweis 10 [Christopher J. Fettweis, Assistant Professor of Political Science at Tulane University, “Threat and Anxiety in US Foreign Policy,” Survival, 52:2, 59-82, March 25th 2010, <http://dx.doi.org/10.1080/00396331003764603>]

One potential explanation for the growth of global peace can be dismissed fairly quickly: US actions do not seem to have contributed much. The limited evidence suggests that there is little reason to believe in the stabilising power of the US hegemon, and that there is no relation between the relative level of American activism and international stability. During the 1990s, the United States cut back on its defence spending fairly substantially. By 1998, the United States was spending $100 billion less on defence in real terms than it had in 1990, a 25% reduction.29 To internationalists, defence hawks and other believers in hegemonic stability, this irresponsible ‘peace dividend’ endangered both national and global security. ‘No serious analyst of American military capabilities’, argued neo-conservatives William Kristol and Robert Kagan in 1996, ‘doubts that the defense budget has been cut much too far to meet America’s responsibilities to itself and to world peace’.30 And yet the verdict from the 1990s is fairly plain: the world grew more peaceful while the United States cut its forces. No state seemed to believe that its security was endangered by a less-capable US military, or at least none took any action that would suggest such a belief. No militaries were enhanced to address power vacuums; no security dilemmas drove insecurity or arms races; no regional balancing occurred once the stabilising presence of the US military was diminished. The rest of the world acted as if the threat of international war was not a pressing concern, despite the reduction in US military capabilities. Most of all, the United States was no less safe. The incidence and magnitude of global conflict declined while the United States cut its military spending under President Bill Clinton, and kept declining as the George W. Bush administration ramped the spending back up. Complex statistical analysis is unnecessary to reach the conclusion that world peace and US military expenditure are unrelated.

### China Relations Resilient

#### **Relations are resilient – diplomacy will overcome any differences**.

Weihua 14 (Chen Weihua, China Daily USA, citing Cui Tiankai, Chinese ambassador to the US, “China-US relations can go to a whole new level in 2014”, 1/6/14, http://usa.chinadaily.com.cn/epaper/2014-01/06/content\_17218238.htm)

To Cui Tiankai, China's ambassador to the United States, China-US relations are like a big ship that will continue to forge ahead despite occasional stormy seas ahead.¶ The two countries marked the 35th anniversary of their diplomatic ties this month, a milestone Cui described as "an event of great international significance". The US announced on Dec 15, 1978, it would sever diplomatic ties with Taiwan and establish diplomatic ties with the People's Republic of China.¶ In Cui's view, China-US relations have always been based on shared interests, from the initial strategic security needs to the present broadening and deepening shared interests in bilateral, regional and global issues.¶ "Great changes have taken place in the world, in China and in the United States in the past 35 years, but our bilateral relationship has generally kept its momentum moving forward," Cui told a press briefing on Friday in Washington.¶ Both nations have benefitted from the relationship. While bilateral trade each year has grown from almost non-existence in the 1970s to approaching $500 billion, China and the US have become ever more intertwined in almost every field.¶ Cui said that he himself was also surprised to learn that there were 230,000 Chinese students enrolled in US colleges and universities, accounting for nearly 30 percent of all international students here. At the same time, 68,000 American students have studied in China since US President Barack Obama announced the 100,000 Strong Initiative in 2009, whose goal is to send 100,000 US students to China over the next four years.¶ While China and the US have found more shared interests from trade to security, Cui believes such a relationship goes far beyond the bilateral realm. A stable China-US relationship is not only essential to the two nations, but also to the Asia-Pacific region and the world, according to Cui, who is in his 10th month as China's ambassador to the US.¶ "So in this sense, maintaining a healthy and steady development of China-US relations is not just in the shared interest of the two nations, but also their responsibility to the world," he said.¶ A career diplomat, Cui has been a close observer and participant of China-US relations since early on. A 1987 graduate of Johns Hopkins School of Advanced International Studies, Cui had worked as a Chinese language translator at UN headquarters in New York City in the early 1980s and later at China's UN mission in the late 1990s. His responsibilities included North American and Oceanian affairs when he was China's vice-foreign minister from January 2010 to April 2013.¶ China-US relations can go to a whole new level in 2014¶ Cui believes China and the US have always been able to find the convergence of shared interests, as well as a new way to tackle challenges.¶ "The China-US relationship has been future-oriented and continues to evolve with the times," he said. "It has continued to move forward amid win-win cooperation."¶ Cui believes the bilateral relationship is one based on mutual respect and a proper handling of differences.¶ As the largest developing nation and the largest developed nation with different histories, cultures, traditions and social systems, it is inevitable that China and the US have differences and even frictions, according to Cui.¶ "But both sides have been working hard to find convergence of shared interest and effective ways to manage the differences," he said. "Various mechanisms to facilitate communications and dialogue have been set up."¶ Cui dismissed the hype over China's announcement in November of the East China Sea Air Defense Identification Zone as being an issue of major difference between the two nations. China only added itself to a long list of ADIZs announced a long time ago by countries including the US. "The two sides have open lines of communication," he said.¶ For Cui, reviewing the past 35 years of China-US relations provides very beneficial lessons on how to push the relationship forward in the future.¶ He said that the consensus reached by Chinese President Xi Jinping and President Obama in early June 2013 to build a new type of major country relationship has pointed to a clear direction.¶ The informal summit at Sunnylands, California, has been widely hailed as a milestone for the most consequential bilateral ties to forge ahead in the 21st century.¶ "With the 35 years of successful experience and with the direction set by the two nations' leaders, I believe China-US relationship, with its sound momentum, will be taken to a whole new level."

### Relations Fail

#### No impact to U.S.-China cooperation – impossible to sustain.

Friedberg 12, Aaron L., Professor of Politics and International Affairs at the Woodrow Wilson School of Public and International Affairs at Princeton University, September/October 2012, “Bucking Beijing,” Foreign Affairs, Vol. 91, No. 5, p. 48-58

Recent events have raised serious doubts about both elements of this strategy. Decades of trade and talk have not hastened China's political liberalization. Indeed, the last few years have been marked by an intensified crackdown on domestic dissent. At the same time, the much-touted economic relationship between the two Pacific powers has become a major source of friction. And despite hopes for enhanced cooperation, Beijing has actually done very little to help Washington solve pressing international problems, such as North Korea's acquisition of nuclear weapons or Iran's attempts to develop them. Finally, far from accepting the status quo, China's leaders have become more forceful in attempting to control the waters and resources off their country's coasts. As for balancing, the continued buildup of China's military capabilities, coupled with impending cuts in U.S. defense spending, suggests that the regional distribution of power is set to shift sharply in Beijing's favor.¶ WHY WE CAN'T ALL JUST GET ALONG¶ TODAY, CHINA'S ruling elites are both arrogant and insecure. In their view, continued rule by the Chinese Communist Party (CCP) is essential to China's stability, prosperity, and prestige; it is also, not coincidentally, vital to their own safety and comfort. Although they have largely accepted some form of capitalism in the economic sphere, they remain committed to preserving their hold on political power.¶ The CCP'S determination to maintain control informs the regime's threat perceptions, goals, and policies. Anxious about their legitimacy, China's rulers are eager to portray themselves as defenders of the national honor. Although they believe China is on track to become a world power on par with the United States, they remain deeply fearful of encirclement and ideological subversion. And despite Washington's attempts to reassure them of its benign intentions, Chinese leaders are convinced that the United States aims to block China's rise and, ultimately, undermine its one-party system of government.¶ Like the United States, since the end of the Cold War, China has pursued an essentially constant approach toward its greatest external challenger. For the most part, Beijing has sought to avoid outright confrontation with the United States while pursuing economic growth and building up all the elements of its "comprehensive national power," a Chinese strategic concept that encompasses military strength, technological prowess, and diplomatic influence. Even as they remain on the defensive, however, Chinese officials have not been content to remain passive. They have sought incremental advances, slowly expanding China's sphere of influence and strengthening its position in Asia while working quietly to erode that of the United States. Although they are careful never to say so directly, they seek to have China displace the United States in the long run and to restore China to what they regard as its rightful place as the preponderant regional power. Chinese strategists do not believe that they can achieve this objective quickly or through a frontal assault. Instead, they seek to reassure their neighbors, relying on the attractive force of China's massive economy to counter nascent balancing efforts against it. Following the advice of the ancient military strategist Sun-tzu, Beijing aims to "win without fighting," gradually creating a situation in which overt resistance to its wishes will appear futile.¶ The failure to date to achieve a genuine entente between the United States and China is the result not of a lack of effort but of a fundamental divergence of interests. Although limited cooperation on specific issues might be possible, the ideological gap between the two nations is simply too great, and the level of trust between them too low, to permit a stable modus vivendi. What China's current leaders ultimately want -- regional hegemony -- is not something their counterparts in Washington are willing to give. That would run counter to an axiomatic goal of U.S. grand strategy, which has remained constant for decades: to prevent the domination of either end of the Eurasian landmass by one or more potentially hostile powers.¶ The reasons for this goal involve a mix of strategic, economic, and ideological considerations that will continue to be valid into the foreseeable future.

### No China War – Deterrence

#### **Chinese conflict won’t escalate – deterrence outweighs competition.**

Keck 13 (Zachary, Assistant Editor of The Diplomat, 7/12/13, “Why China and the US (Probably) Won’t Go to War”, The Diplomat, <http://thediplomat.com/flashpoints-blog/2013/07/12/why-china-and-the-us-probably-wont-go-to-war/>)

But while trade cannot be relied upon to keep the peace, a U.S.-China war is virtually unthinkable because of two other factors: nuclear weapons and geography.¶ The fact that both the U.S. and China have nuclear weapons is the most obvious reasons why they won’t clash, even if they remain fiercely competitive. This is because war is the continuation of politics by other means, and nuclear weapons make war extremely bad politics. Put differently, war is fought in pursuit of policy ends, which cannot be achieved through a total war between nuclear-armed states.¶ This is not only because of nuclear weapons destructive power. As Thomas Schelling outlined brilliantly, nuclear weapons have not actually increased humans destructive capabilities. In fact, there is evidence to suggest that wars between nomads usually ended with the victors slaughtering all of the individuals on the losing side, because of the economics of holding slaves in nomadic “societies.” ¶ What makes nuclear weapons different, then, is not just their destructive power but also the certainty and immediacy of it. While extremely ambitious or desperate leaders can delude themselves into believing they can prevail in a conventional conflict with a stronger adversary because of any number of factors—superior will, superior doctrine, the weather etc.— none of this matters in nuclear war. With nuclear weapons, countries don’t have to prevail on the battlefield or defeat an opposing army to destroy an entire country, and since there are no adequate defenses for a large-scale nuclear attack, every leader can be absolute certain that most of their country can be destroyed in short-order in the event of a total conflict.¶ Since no policy goal is worth this level of sacrifice, the only possible way for an all-out conflict to ensue is for a miscalculation of some sort to occur. Most of these can and should be dealt by Chinese and the U.S. leaders holding regularly senior level dialogues like the ones of the past month, in which frank and direct talk about redlines are discussed.¶ These can and should be supplemented with clear and open communication channels, which can be especially useful when unexpected crises arise, like an exchange of fire between low-level naval officers in the increasingly crowded waters in the region. While this possibility is real and frightening, it’s hard to imagine a plausible scenario where it leads to a nuclear exchange between China and the United States. After all, at each stage of the crisis leaders know that if it is not properly contained, a nuclear war could ensue, and the complete destruction of a leader’s country is a more frightening possibility than losing credibility among hawkish elements of society. In any case, measured means of retaliation would be available to the party wronged, and behind-the-scenes diplomacy could help facilitate the process of finding mutually acceptable retaliatory measures.

### No China War – Interdependence

#### China won’t risk conflict with the U.S. – economic and military interdependence, international legitimacy, overriding domestic concerns.

Sutter 14 (Robert Sutter, Prof @ George Washington University, China-U.S. Focus, Why China Avoids Confronting the U.S. in Asia, 3/19/14, http://www.chinausfocus.com/foreign-policy/why-china-avoids-confronting-the-u-s-in-asia-2/)

Forecasts talk of U.S. retreat from domineering China or an inevitable U.S.-China conflict. However, enduring circumstances hold back Chinese leaders from confronting America, the regional leader.¶ Domestic preoccupations¶ Chinese economic growth and one-party rule require stability. And protecting Chinese security and sovereignty remains a top concern. Though China also has regional and global ambitions, domestic concerns get overall priority.¶ President Xi Jinping is preoccupied with uncertain leadership legitimacy, pervasive corruption, widespread mass protests, and unsustainable economic practices. Beijing’s reform agenda requires strong leadership for many years. Under these circumstances, Xi was unusually accommodating in meeting President Obama in California in 2013; he seeks a new kind of major power relationship. Xi also presides over China’s greater assertiveness on territorial issues that involve the United States, but thus far Chinese probes avoid direct confrontation with the superpower.¶ Mutual interdependence ¶ Growing economic and other U.S.-China interdependence reinforces constructive relations. Respective “Gulliver strategies” tie down aggressive, assertive, or other negative policy tendencies through webs of interdependence in bilateral and multilateral relationships. ¶ China’s insecurity in Asia ¶ Nearby Asia is China’s top foreign priority. It contains security and sovereignty issues (e.g. Taiwan) of highest importance. It is the main arena of interaction with the United States. Its economic importance far surpasses the rest of world (China is Africa’s biggest trader but it does more trade with South Korea). Asian stability is essential for China’s economic growth—the lynch pin of Communist rule. Facing formidable American presence and influence and lacking a secure periphery, China almost certainly calculates that seriously confronting the United States poses grave dangers. ¶ Chinese strengths in Asia include extensive trade and investment; webs of road, rail, river, electric power, pipeline and other linkages; leadership attention and active diplomacy; and expanding military capabilities. Weaknesses are:¶ 1. Chinese practices alienate near-by governments, which broadly favor key aspects of U.S. regional leadership. Leadership involves costly and risky efforts to support common goods involving regional security and development. China avoids such efforts unless there is a payoff for a narrow Chinese win-set. It “cheap rides,” hoarding resources to deal with serious domestic challenges. ¶ 2. Chinese assertiveness toward neighbors puts nearby governments on guard and weakens Chinese regional influence. It revives the PRC’s justified Cold War reputation for disruption, domination and intimidation. ¶ 3. China achievements in advancing influence in Asia since the Cold War are mediocre. China promotes an image of consistent and righteous behavior in foreign affairs; this is believed in China but is so far from reality that it grossly impedes effectively dealing with disputes. The PRC has the truly exceptional position among major powers as having never acknowledged making a mistake in foreign policy. When China encounters a dispute with neighbors, the fault never lies with China. If Beijing chooses not to blame the neighbor, it blames larger forces usually involving the United States. The noxious mix also emphasizes China’s historic victimization. In sum, Beijing is quick to take offense and impervious to recognizing China’s fault and needed change. ¶ State relationships vacillate and remain encumbered. Relations with Japan are at their lowest point. India is more wary of China today than ten years ago. Russian and Chinese alignment waxes and wanes; it’s waning over Ukraine and Crimea. Taiwan moves closer to China, but its political opposition remains opposed. ¶ South Korean opinion of China declined sharply from a high point a decade ago and struggles to recover. Disputed claims in the South China Sea seriously complicate often close economic relations with Southeast Asian countries. China’s remarkable military modernization seriously concerns major trading partners; Australia is much more wary of China than ten years ago. ¶ Trade in Asia remains heavily interdependent. Half of Chinese trade is conducted by foreign invested enterprises in China. 60 percent of the goods that are exported from China and ASEAN are ultimately manufactures that go to the United States, Europe and Japan. Only 22 percent of these goods stay in the China-ASEAN region. Actual Chinese aid (as opposed to financing that will be repaid in money or commodities) to Asia is very small, with the exception of Chinese aid to North Korea. ¶ China has shown no viable way of dealing North Korea, perhaps the largest foreign insecurity for the Xi Jinping government. ¶ Chinese insecurities are reinforced by U.S. strengths as America influences and leads in Asia: ¶ Security guarantor. Most Asian governments stress development that requires a stable and secure environment. Unfortunately, Asia is not particularly stable and Asian governments tend to distrust one another. They rely on the United States to maintain regional stability. The U.S. security role is very expensive and involves great risk, including many casualties if necessary. Neither China nor any other Asian power or coalition of powers is able or willing to undertake even a fraction of these risks and costs. ¶ Essential economic partner. Most Asian governments depend importantly on export oriented growth. Growing Asian trade relies on the United States. Most notably, Asian exports lead to a massive trade surplus with the open U.S. market. China consistently avoids such costs that nonetheless are very important for Asian governments. ¶ Government engagement. Apart from China, the Obama government’s rebalance has been broadly welcomed in Asia. U.S. military, other security and intelligence organizations have developed unprecedented wide ranging relationships with almost all regional governments, a posture strongly shaping Asian security. ¶ Non-government engagement. America is extraordinary in longstanding business, religious, educational, media and other non-government interchange which is widespread, uniquely influential and strongly reinforces overall U.S. sway. Generally color-blind U.S. immigration policy since 1965 means that millions of Asian migrants call America home and interact with their countries of origin in ways that undergird U.S. interests. ¶ Asian hedging. As China’s rises, Asian governments seek to work pragmatically with China, but they also seek the reassurance of close security, intelligence, and other ties with the United States, especially as China becomes more assertive. ¶ Bottom line. The Obama government rebalance seeks stability while fostering economic growth and overlaps constructively with the priorities of the vast majority of regional governments. China seeks advantageous economic interchange, but its remains insecure as its ambitions, coercion, intimidation and gross manipulation come at neighbors’ expense.

### No Trade Wars

#### Trade wars don't escalate.

Bearce 3 (David, Associate Prof. Pol. Sci. @ U. Pittsburgh International Studies Quarterly, ìGrasping the Commercial Institutional Peaceî, 47:3, Blackwell-Synergy)

Even as we accept that such trade dispute settlement mechanisms help resolve economic conflict, it is not clear that this finding should have any strong application to the dependent variable of inter-state military conflict. On this point, it is important to distinguish between different types of inter-state conflict—economic versus military ([McMillan, 1997:39](http://www3.interscience.wiley.com/cgi-bin/fulltext/118869067/main.html,ftx_abs#b64))—and recognize that disputes about banana tariffs, for example, are not likely to escalate into military confrontations. While military conflict often has economic antecedents, there is little evidence that trade wars ever become shooting wars. In terms of inter-state disagreements with real potential for military conflict, scholars highlight territorial disputes ([Vasquez, 1993; Hensel, 2000; Huth, 2000](http://www3.interscience.wiley.com/cgi-bin/fulltext/118869067/main.html,ftx_abs#b96)). The trade dispute settlement mechanisms embedded in regional commercial institutions simply have no jurisdiction or power to resolve highly contentious territorial disagreements.

### AT: Prolif Add-On

#### Empirics prove that nuclear proliferation doesn’t increase the risk of war.

Tepperman 9 (Jonathan Tepperman, Vice Chairman of the Halifax International Security Forum, Council on Foreign Relations, Managing Editor, Foreign Affairs, “Why Obama should learn to love the bomb” Newsweek, Nov 9, 2009 <http://jonathantepperman.com/Welcome_files/nukes_Final.pdf>)

**A** growing and compelling body of research suggests that nuclear weaponsmay not, in fact, make the world more dangerous, as Obama and most people assume. The bomb may actually make us safer. In this era of rogue states and trans-national terrorists, that idea sounds so obviously wrongheaded that few politicians or policymakers are willing to entertain it. But that’s a mistake. Knowing the truth about nukes would have a profound impact on government policy. Obama’s idealistic campaign, so out of character for a pragmatic administration, may be unlikely to get far (past presidents have tried and failed). But it’s not even clear he should make the effort. There are more important measures the U.S. government can and should take to make the real world safer, and these mustn’t be ignored in the name of a dreamy ideal (a nuke free planet) that’s both unrealistic and possibly undesirable. The argument that nuclear weapons can be agents of peace as well as destruction rests on two deceptively simple observations. First, nuclear weapons have not been used since 1945. Second, there’s never been a nuclear, or even a nonnuclear, war between **two states that possess them**. Just stop for a second and think about that: it’s hard to overstate how remarkable it is, especially given the singular viciousness of the 20th century. As Kenneth Waltz, the leading “nuclear optimist” and a professor emeritus of political science at UC Berkeley puts it, “We now have 64 years of experience since Hiroshima. It’s striking and against all historical precedent that for that substantial period, there has not been any war among nuclear states.” To understand why—and why the next 64 years are likely to play out the same way—you need to start by recognizing that **all state**s are rational on some basic level. Their leaders may be stupid, petty, venal, even evil, but they tend to do things only when they’re pretty sure they can get away with them. Take war: **a country will start a fight only when it’s almost certain it can get what it wants at an acceptable price**. Not even Hitler or Saddam waged wars they didn’t think they could win. The problem historically has been that leaders often **make the wrong gamble and underestimate the other side**—and millions of innocents pay the price. **Nuclear weapons change all that by making the costs of war** obvious, inevitable, and unacceptable. Suddenly, when both sides have the ability to turn the other to ashes with the push of a button— and everybody knows it—the basic math shifts. Even the craziest tin-pot dictator is forced to accept that war with a nuclear state is unwinnable and thus not worth the effort. As Waltz puts it, “Why fight if you can’t win and might lose everything?” Why indeed? **The iron logic of deterrence** and mutually assured destruction **is so compelling**, it’s led to what’s known as the nuclear peace: the virtually unprecedented stretch since the end of World War II in which all the world’s major powers have avoided coming to blows. They did fight proxy **wars**, ranging from Korea to Vietnam to Angola to Latin America. But these never matched the furious destruction of full-on, great-power war (World War II alone was responsible for some 50 million to 70 million deaths). And since the end of the Cold War, such bloodshed has declined precipitously. Meanwhile, the nuclear powers have scrupulously avoided direct combat, and there’s very good reason to think they always will. There have been some near misses, but a close look at these cases is fundamentally reassuring—because in each instance, very different leaders all came to the same safe conclusion. Take the mother of all nuclear standoffs: the Cuban missile crisis. For 13 days in October 1962, the United States and the Soviet Union each threatened the other with destruction. But both countries soon stepped back from the brink when they recognized that a war would have meant curtains for everyone. As important as the fact that they did is the reason why: Soviet leader Nikita Khrushchev’s aide Fyodor Burlatsky said later on, “It is impossible to win a nuclear war, and both sides realized that, maybe for the first time.” The record since then shows the same pattern repeating: nuclear armed enemies slide toward war, then pull back, always for the same reasons. **The best recent example is India and Pakistan**, which fought three bloody wars after independence before acquiring their own nukes in 1998. **Getting their hands o**n weapons of mass destruction didn’t do anything to lessen their animosity. But it did dramatically mellow their behavior. Since acquiring atomic weapons, the two sides have never fought another war.

## Off Case

### Environment DA Links

#### **Ocean floor mining devastates ecosystems and permanently damages massive regions.**

Goldenberg 14 (Suzanne Goldenberg, environmental correspondent, The Guardian, “Marine mining: Underwater gold rush sparks fears of ocean catastrophe”, 3/1/14, http://www.theguardian.com/environment/2014/mar/02/underwater-gold-rush-marine-mining-fears-ocean-threat)

This is the last frontier: the ocean floor, 4,000 metres beneath the waters of the central Pacific, where mining companies are now exploring for the rich deposits of ores needed to keep industry humming and smartphones switched on. The prospect of a race to the bottom of the ocean – a 21st-century high seas version of the Klondike gold rush – has alarmed scientists. The oceans, which make up 45% of the world's surface, are already degraded by overfishing, industrial waste, plastic debris and climate change, which is altering their chemistry. Now comes a new extractive industry – and scientists say governments are not prepared. "It's like a land grab," said Sylvia Earle, an oceanographer and explorer-in-residence for National Geographic. "It's a handful of individuals who are giving away or letting disproportionate special interests have access to large parts of the planet that just happen to be under water." The vast expanses of the central Pacific seabed being opened up for mining are still largely an unknown, she said. "What are we sacrificing by looking at the deep sea with dollar signs on the few tangible materials that we know are there? We haven't begun to truly explore the ocean before we have started aiming to exploit it." But the warnings may arrive too late. The price of metals is rising. The ore content of the nodules of copper, manganese, cobalt and rare earths strewn across the ocean floor promise to be 10 times greater than the richest seams on land, making the cost of their retrieval from the extreme depths more attractive to companies. Mining the ocean floor of the central Pacific on a commercial scale is five years away, but the beginnings of an underwater gold rush are under way The number of companies seeking to mine beneath international waters has tripled in the last three or four years. "We have already got a gold rush, in a way," said Michael Lodge, deputy secretary general of the International Seabed Authority, which regulates the use of the sea floor in international waters. "The amount of activity has expanded exponentially." The Jamaica-based agency has granted 26 permits to date to explore an area the size of Mexico beneath the central Pacific that had been set aside for seabed mining – all but eight within the last three or four years. Britain is leading the way in a project led by Lockheed Martin, but Russia, China, Japan, and South Korea all have projects in play. This year alone, companies from Brazil, Germany and the Cook Islands have obtained permits to explore tracts of up to 75,000 sq km on the ocean floor for copper, cobalt, nickel and manganese, and the rare earth metals that help power smartphones, tablets and other devices. Other areas of the Pacific – outside international waters – are also opening up for mining. Papua New Guinea has granted permission to a Canadian firm, Nautilus Minerals, to explore a site 30km off its coast for copper, zinc and gold deposit worth potentially hundreds of millions of dollars. Lodge expects the pace to continue, with rising demand for metals for emerging economies, and for technologies such as hybrid cars and smart phones. Extracting the metals will not require drilling. The ore deposits are in nodules strewn across the rolling plains of sediment that carpet the ocean floor. Oceanographers say they resemble knobbly black potatoes, ranging in size from a couple of centimetres to 30cm. Mining companies say it may be possible to scoop them up with giant tongs and then siphon them up to vessels waiting on the surface. The problem is much remains unknown – not just about what exists on the ocean floor but how ocean systems operate to keep the planet habitable. The ocean floor was once thought to be a marine desert, but oceanographers say the sediment is rich in marine life, with thousands of species of invertebrates at a single site. "It's tampering with ecosystems we hardly understand that are really at the frontier of our knowledge base," said Greg Stone, vice-president for Conservation International. "We are starting mining extracting operations in a place where we don't fully understand how it works yet. So that is our concern – disturbing the deep sea habitat." Most of the models rely on being able to produce 1 million tonnes of ore a year. Stone said the seabed authority was putting systems in place to protect the ocean floor, but other scientists said there still remained enormous risks to the sediment and the creatures that live there. "It is going to damage vast areas of the sea floor," said Craig Smith, an oceanographer at the University of Hawaii who served as an adviser to the International Seabed Authority. "I just don't see any way [in] mining one of these claims that whole areas won't be heavily damaged." Earle expressed fears about how mining companies will deal with waste in the high seas. "Mining is possible," she said. "But the 20,000ft question is what do you do with the tailings? All of the proposals involved dumping the tailings at sea with profound impacts on the water column and the sea floor below. The Seabed Authority initially proposed to set aside 1.6m sq km of the ocean floor as protected areas, or about 20% of its territory. But those reserves are under review. As economic pressures rise, there are fears that commercial operations would begin to erode those protected areas. "I think it is certain that within a year or two there will be more claims covering these areas and there won't be enough room left to develop these scientifically defensible protected areas," Smith said. Some have argued that with all the unknowns there should be no mining at all – and that the high seas should remain out of bounds for mineral extraction and for shipping. José María Figueres, a former president of Costa Rica and co-chair with the former British foreign secretary, David Miliband, of the Global Ocean Commission, an independent entity charged with developing ideas for ocean reform, suggested leaving all of the high seas as a no-go area for commercial exploitation (apart from shipping). "Do we know enough about the seabed to go ahead and mine it?" said Figueres. "Do we understand enough about the interconnection between the seabed, the column of water, the 50% of the oxygen that the ocean produces for the world, the 25% of the carbon that it fixes in order to go in and disrupt the seabed in way that we would if we went in and started mining? I don't think so, not until we have scientific backing to determine whether this is something good or bad for the planet." World leaders are now mobilising to address concerns, not just about seabed mining, but about how to safeguard ocean systems which are increasingly recognised as critical to global food security and a healthy planet. US secretary of state John Kerry, in a video address delivered to a high-level ocean summit hosted by the Economist and National Geographic last week, invited leaders to a two-day summit in Washington that will seek ways of protecting fishing stocks from overexploitation and protecting the ocean from industrial pollution, plastic debris and the ravages of climate change. The stakes have never been higher, scientists said. The oceans are becoming increasingly important to global food security. Each year more than a million commercial fishing vessels extract more than 80m metric tonnes of fish and seafood from the ocean. Up to three billion people rely on the sea for a large share of their protein, especially in the developing world. Those demands are only projected to grow. "If you look at where food security has to go between now and 2030 we have to start looking at the ocean. We have to start looking at the proteins coming from the sea," said Valerie Hickey, an environmental scientist at the World Bank. That makes it all the more crucial to crack down on illegal and unregulated fishing, which is sabotaging efforts to build sustainable seafood industries. Two-thirds of the fish taken on the high seas are from stocks that are already dangerous depleted – far more so than in those parts of the ocean that lie within 200 miles of the shore and are under direct national control. Estimates of the unreported and illegal catch on the high seas range between $10bn and $24bn a year, overwhelming government efforts to track or apprehend the illegal fishing boats. The illegal fishing also hurts responsible fishing crews. Figueres and Miliband suggested fitting all the vessels operating on the high seas with transponders to track their movements. That would single out rogue fishing vessels, making it easier for authorities to apprehend the vessels and their catch. It's not a perfect solution. A diplomat who has negotiated international agreements to control illegal fishing said captains – already cagey about revealing their favourite fishing routes – would simply flip off the transponders. United Nations officials were also sceptical of the idea of a high-seas police force. "It sounds a little bit like science fiction for me at this particular moment," said Irina Bokova, the director general of Unesco, which manages 46 marine sites. "What kind of police? Who is going to monitor? How is it founded? It's a very complicated issue." But the debate was a sign of growing momentum in an international effort to protect the oceans – before it's too late. When it comes to the ocean floor, that process is at the very early stages. But given the multiple disasters humans have made with the ocean so far, the stakes are high for getting it right. "There is no doubt there are huge mineral resources to be extracted at some point in the future," Lodge said. "It's also true we don't know enough about the impact on biodiversity and the impact on marine life once the mining takes place." As the ultimate custodian, said Michael Lodge, the International Seabed Authority had two responsibilities; making sure companies access that vast mineral wealth in an environmentally responsible way, and then sharing it out equitably. "We have a huge challenge to devise a fiscal regime so that humankind as a whole gets a fair share. That's an enormous challenge, he said. "If we end up giving it away to industry, then we have failed in our missions." And the costs of such a failure are already becoming painfully evident in the greater ocean.

#### **Mining destroys the environment – toxic leaks and carbon emissions.**

Sims 13 (David Sims, green tech reporter for Industry Market Trends, “Rare Earths and Other Chemicals Damaging the Environmental Value of Renewables”, 8/22/13, http://news.thomasnet.com/IMT/2013/08/22/rare-earths-and-other-chemicals-damaging-the-environmental-value-of-renewables/)

Wind energy seems so clean — gentle breezes quietly spinning sleek blades, generating energy. What could be dirty about that? According to The Data Center Journal, for one, the answer is, “Plenty.” See, to get those wonderful turbines, one needs a rather large quantity of rare earth minerals (which, despite their name, are not so rare). Mining and processing these rare earths generates a tremendous amount of “hazardous and radioactive byproducts,” the DCJ reports, which “can cause tremendous harm to both people and the environment.” In fact, the environmental effects of rare earth mining can be literally sickening. In the Mongolian town of Baotou, the epicenter of Chinese rare earths production, the mining has literally killed off the local farming, The Guardian reports: “The soil and groundwater are saturated with toxic substances. Five years ago (local farmer) Li had to get rid of his sick pigs, the last survivors of a collection of cows, horses, chickens, and goats, killed off by the toxins.” The environmental damage that rare earth production requires might be one of the major reasons the U.S. is happy to let China do most of it, and buy the finished product from them. The irony is rather hard to miss — proponents of wind power demand stringent environmental standards on our domestic coal and nuclear industry, but seem strangely unconcerned at the appalling environmental conditions necessary to supply their rare earths habit. In fact, it’s rare earths which account for a great deal of the overall carbon footprint of green energy, energy storage, and other clean technologies. The 17 so-called rare earth minerals, e.g., the lanthanides, scandium, and yttrium, as well as associated metals molybdenum and tungsten, are needed in the production of items such as cell phones, other popular consumer electronics, batteries, the electronics governing defense systems, and missiles. Production and consumption of rare earth minerals totaled over 100,000 metric tons in 2012, according to a report from IHS Chemical in Houston. IHS’s study estimates that from 2012 to 2017, global demand for rare earth products will grow by 7.6 percent annually and reach more than 150,000 metric tons, with China leading consumption growth at 8.3 percent annually. Rare Earths Not So Rare, Actually. Contrary to the term, rare earths are actually abundant — far more so than silver and gold. Australia, the U.S., and other have nations have sizable reserves. But world production is predominantly controlled by China. It’s an almost-ironic situation where carbon-intensive production and mining methods are used to manufacture products designed to lower the overall carbon footprint. Danish wind turbine producer Vestas writes on its website, “The rare earth elements are used in the magnets found in the tower and in the permanent-magnet generators in some of the newer models… to improve the performance of turbines by making the generators more efficient and more grid-compatible,” which allows for smaller generators requiring “fewer other resources (steel, composite structural materials, etc.) and a smaller carbon footprint.” Rare Earths Not So Eco-Friendly, Either. According to the online journal Ecocred, “[A]n electric car might use nearly 10 times the amount of rare earth metals as opposed to a conventional car, which uses a little more than one pound of rare earth materials.” Research conducted at MIT noted, “A single large wind turbine (rated at about 3.5 WM) typically contains 600 kg, or about 1,300 lbs, of rare earth metals.” The grim trade-off between obtaining power from wind and the methods required to make that happen leave those within the industry uncomfortable. “Executives in the $1.3 billion rare-earths mining industry say that less environmentally damaging mining is needed, given the importance of their product for green energy technologies,” The New York Times wrote back in 2009, adding that Nicholas Curtis, the executive chairman of the Lynas Corporation of Australia, in a speech to an industry gathering in Hong Kong said, “This industry wants to save the world. We can’t do it and leave a product that is glowing in the dark somewhere else, killing people.”